MARINE HOSPITAL SERVICE
1798 · U · S · 1871

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ANNUAL REPORT

OF THE

SUPERVISING SURGEON-GENERAL

OF THE

MARINE-HOSPITAL SERVICE OF THE UNITED STATES

FOR THE

FISCAL YEAR 1900.

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Marine-Hospital Service.

MARINE HOSPITAL SERVICE
1798 U.S 1871

OPERATIONS

OF THE

UNITED STATES MARINE-HOSPITAL SERVICE.

1900.

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ANNUAL REPORT

OF THE

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

REPORT TO THE SECRETARY.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL
MARINE-HOSPITAL SERVICE,
Washington, November 1, 1900.

Hon. L. J. GAGE,
Secretary of the Treasury.

SIR: I have the honor to submit the following report of the Marine-Hospital Service of the United States for the fiscal year ended June 30, 1900, the same being the twenty-ninth annual report of the Service and the one hundred and second year of its existence.

In addition to the information pertaining to the fiscal year 1900, the operations of the Service in regard to quarantine and public health matters are narrated to the present date.

The reorganization of the Bureau, in accordance with the plan outlined in my report for 1899, has resulted in facilitating the transaction of public business and increasing the efficiency of the Bureau. According to the general plan of this organization, I have caused the officers in charge of the various divisions of the Bureau to submit reports of the transactions of their respective divisions, all of which reports make up the report of the Service which follows.

The reports of the various divisions being somewhat in detail, I include herein a review of the work of the whole Service in brief.

PERSONNEL.

The commissioned corps consisted at the close of the fiscal year of 107 officers, including the Surgeon-General, 29 surgeons, 21 passed assistant surgeons, and 56 assistant surgeons. Of noncommissioned officers there were 111 acting assistant surgeons and 38 hospital stewards. Of hospital and quarantine attendants there were 547, and in the Cuban quarantine service there were 23 acting assistant surgeons and 129 attendants.

One officer, Asst. Surg. W. R. McAdam, died of yellow fever at Key West, Fla., in October, 1899.

Three boards were convened during the year for the examination of candidates for appointment as assistant surgeons, at which 76 physicians appeared for examination, 19 of whom attained the required average. Two boards were convened for the examination of officers of the Service for promotion, and two boards for the physical examination of candidates for appointment in the Revenue-Cutter Service.

Sixteen medical officers have been detailed to represent the Service and the Treasury Department at various national and international medical and public health congresses.

ACCOUNTS.

During the year approximately 16,600 vouchers were passed for payment or settlement by the auditor. This number includes 1,800 vouchers on account of the Cuban quarantine service. The total expenditures under the various appropriations controlled by the Bureau was $1,465,000, exclusive of expenditures for quarantine service in Cuba and the Philippine Islands.

The balance of the marine-hospital fund available at the commencement of the fiscal year was $682,024.33, and the receipts from all sources $916,361.60. The expenditures were $825,072.51. The balance July 1, 1900, was $773,313.42.

The balance of the appropriation, "Preventing the spread of epidemic diseases," available July 1, 1899, was $284,996.08; the appropriation act of June 6, 1900, $500,000, and repayments, $20,112.88; total available during the year, $805,108.96; expenditures, $336,527; balance July 1, 1900, $468,581.96.

Appropriation, "Quarantine service, 1900," $210,000, and repayments, $439.09; expenditures, $210,159.36; leaving a balance July 1, 1900, of $279.73, which is required to meet outstanding accounts.

MARINE HOSPITALS AND RELIEF.

In addition to the 22 marine hospitals owned by the Service and the 107 relief stations previously reported, there have been added one hospital of class 1 at Dutch Harbor, Alaska, and two second-class relief stations, viz, at San Juan and Ponce, Porto Rico. The third-class station at Milwaukee has been changed to a second class and a commissioned officer of the Marine-Hospital Service placed in command. There have been added four third-class stations, as follows: Menominee, Mich.; Manitowoc, Wis.; Lexington, Mich., and Paducah, Ky. I may add that before establishing relief stations as above an officer of the Service was directed to inquire into the necessities of the same, as has always been customary, and upon his recommendation, after a thorough investigation, the above-named stations only were established out of some eight or ten requests from other ports desiring the opening of relief stations for sick and disabled seamen.

The number of cases treated in hospital during the past fiscal year were 12,872, and the number receiving office relief were 43,451, making a total of 56,323 cases cared for by the Service. There were 311,597 days' relief furnished, and the office patients received treatment 66,791 times. This does not include relief furnished by officers of the Service in the Immigration Bureau, to surfmen in the Life-Saving Service, to officers and seamen of the Revenue-Cutter Service, to seamen of the Navy, and the applicants for examination in said services.

MARINE HOSPITAL FOR CONSUMPTIVES (SANATORIUM), FORT STANTON, N. MEX.

The sanatorium for consumptives of the Marine-Hospital Service, the establishment of which was mentioned in my last annual report, has been successfully conducted, with every indication of its accomplishing the results which were anticipated. It was officially opened for the reception of patients April 27, 1899, and to date there have been 76 patients admitted, transferred there from the several marine hospitals, of whom 11 have been discharged as recovered, 13 improved in health, and 8 have died of tubercle of the lungs, the disease having advanced too far for the patients to reap the benefits of the change.

At the last session of Congress the plan and scope of this sanatorium was set forth in detail before the Committee on Appropriations in the Senate, in a letter requesting that this institution be included in the appropriation for the heating, hoisting, and ventilating of public buildings, which was done.

This measure, intended to relieve the marine hospitals of this contagious disease and to prevent the return to forecastles and confined quarters of tuberculous patients, at the same time offering them the probability of an absolute cure, is in line with the present efforts of State and municipal health organizations the world over to prevent the spread of the "great white plague."

PURVEYING DEPOT, NEW YORK.

I desire to report that the wisdom of the transfer of the purveying division to New York, which was approved by you, has been fully exemplified, and much satisfaction has been expressed with the improved quality of the supplies, which, under the present arrangement, are personally examined before purchase by the medical purveyor or his assistants, while the facilities for distributing supplies from New York have proven to be of great advantage; this has been particularly noticeable in shipments to our insular possessions.

The business of this division had become too large for its cramped quarters in the Bureau in Washington, and the rooms occupied by it were imperatively needed in the enlargement of the Bureau clerical force required by the growth of the Service and as provided for by Congress in the last appropriation bill. Aside from this, as a business proposition, the reasons for the change were detailed in the annual report of the Service for 1898, and the report of the officer in charge narrates the advantages of having this depot located at a great business center, where contracts may be made with manufacturers direct, without the intervention of middlemen, and where, with the enlarged facilities, careful inspection of goods before shipment to stations may be made.

Through this depot the marine hospitals and quarantine stations, both of the United States and in Hawaii, Cuba, Porto Rico, and to a limited extent even in the Philippines, have received their supplies. Purveying has also been done for the Immigration and Revenue-Cutter services. More than 11,000 packages were shipped during the fiscal year, weighing about 600,000 pounds.

NEW HOSPITALS NEEDED AT NEW YORK AND HONOLULU.

I have to renew my recommendation that an appropriation be made for a marine hospital for the port of New York, to which reference was made in the annual report for 1899 and previous reports.

I have also to recommend that an appropriation be made for a marine hospital at Honolulu, a tract of land known as the "Punch Bowl" having already been set aside by Executive order of January 8, 1900, as a site for such a building. Relief is at present being furnished sailors of the merchant marine at Honolulu under contract.

AID TO OTHER SERVICES.

Aid was extended to other branches of the Government service, as follows, namely: To the Life-Saving Service in the examination of 1,467 surfmen, of whom 75 were rejected, and the examination of 380 claims of surfmen for the benefits provided by section 7 of the act of May 4, 1882; to the Revenue-Cutter Service in the examination of 977 applicants for enlistment, of whom 98 were rejected; to the Steamboat Inspection Service in the examination of 2,437 applicants for pilot's licenses, of whom 99 were rejected for color-blindness; to the Coast Survey and Light-House Service in the examination of 9 applicants for enlistment, of whom 3 were rejected; and to the Immigration Service in the medical inspection of 448,572 immigrants. Moreover, the management of the hospital at New York for the care of immigrants has been under the charge of the Marine-Hospital Service.

CONTRIBUTED ARTICLES, ETC.

Following the report of the medical officer in charge of the division of marine hospitals and relief will be found several interesting articles on medical and sanitary subjects, contributed by officers of the Service.

After these contributed articles appear the reports of fatal cases with necropsies, followed by the statistical tables.

SANITARY REPORTS AND STATISTICS.

The weekly edition of Public Health Reports, containing sanitary information of every character, both regarding the United States and as received from consular and other officers abroad, has been prepared in the division of sanitary reports and statistics. These reports are mailed to all quarantine and sanitary officers, the weekly edition numbering 3,000 copies.

INSULAR AND FOREIGN QUARANTINE.

CUBA.

The medical officer in command at the port of Habana, Cuba, has been detailed as chief quarantine officer for the island and given supervision over the officers at the various ports. On June 29, 1900, an Executive order was issued, detailing the chief quarantine officer on the staff of the military governor of the island of Cuba. Regulations were promulgated specifying the duties of each of the officers under the new régime.

The former Spanish quarantine station at Mariel, near Habana, has been transferred by the War Department for use as a quarantine station by the Marine-Hospital Service. Repairs have been made to the buildings and disinfecting machinery installed, making this a very complete plant.

PORTO RICO.

An act temporarily to provide revenues and a civil government for Porto Rico, and for other purposes, approved April 12, 1900, provided for the establishment of quarantine stations in Porto Rico under the supervision of the Marine-Hospital Service. Provision was then made by Congress for the maintenance of these quarantine stations.

The War Department has transferred, for the use of the Marine-Hospital Service, the former Spanish quarantine station on Miraflores Island, in the harbor of San Juan. The buildings have been repaired and the grounds improved until the station is well equipped for detention purposes. A floating disinfection plant for this port is nearing completion and will be anchored in the harbor of San Juan. A similar floating plant, for use at or near Ponce, is contemplated.

THE PHILIPPINES.

The Executive order of January 4, 1900, placed quarantine administration in the Philippines under the Marine-Hospital Service and set aside $300,000 a year from the revenues of the islands for the purpose. In accordance therewith, medical officers have been detailed for duty at the ports of Manila, Iloilo, and Cebu. The War Department has transferred, for use of the Marine-Hospital Service, the former Spanish quarantine station at Mariveles, on a small arm of Manila Bay. This is now being remodeled and equipped as a complete disinfection and detention plant.

HAWAII.

As stated in the annual report for the last fiscal year, a medical officer was detailed for duty in the office of the United States consul at Honolulu. On April 30, 1900, the act of Congress to provide a government for the Territory of Hawaii was approved, which act provided for the establishment and maintenance of quarantine in Hawaii under the jurisdiction of the Marine-Hospital Service. Congress then appropriated $75,000 for quarantine maintenance in Hawaii during the present fiscal year. The former Hawaiian quarantine station on a small island in the harbor of Honolulu was transferred to the Marine-Hospital Service. This station is well located, and the buildings were found to be in very fair condition. Certain repairs and improvements will make it an excellent quarantine plant. Negotiations are now pending for the establishment of a floating disinfecting plant in the harbor of Honolulu. Inspection stations have been established at Kahului, Hilo, and Kihei.

During the prevalence of bubonic plague at Honolulu the medical officer in command at that point tendered his services to the local board of health and rendered great assistance to them. The Bureau transmitted a large quantity of antipest serum and Haffkine's prophylactic, which was used during the epidemic.

CENTRAL AMERICA.

The acting assistant surgeons of the Marine-Hospital Service located last year at the fruit ports of Central America were recalled October 31, 1899. Medical officers were again stationed at the ports of Belize, Livingston, Puerto Cortez, Bluefields, Port Limon, Bocas del Toro, and La Ceiba in March, 1900. They have jurisdiction over vessels, their crews, cargoes, and passengers while at the Central American fruit ports, and sign the bills of health in conjunction with the United States consuls. Special regulations have been prepared for their guidance.

EUROPE.

By reason of the existence of bubonic plague in Europe and the danger of its transmission to the United States by immigrants, medical officers were detailed in November, 1899, for duty in the offices of the United States consuls at the following ports: Cadiz and Barcelona, Spain; Glasgow, Scotland; Liverpool, London, and Southampton, England; Queenstown, Ireland; Hamburg and Bremen, Germany; Rotterdam, Netherlands; Antwerp, Belgium; Havre and Marseille, France, and Genoa, Italy. One officer of the Service was already on duty at Naples, Italy. These officers inspected all immigrants embarking for the United States, disinfected the baggage of such as required it under the regulations, inspected the vessels, and signed the bills of health in conjunction with the consuls. In June, 1900, plague having disappeared from Europe and the services of the officers being needed elsewhere, they were recalled with the exception of five. One of these remained at Naples. The other four were detailed, respectively, in the offices of the United States consuls-general at London, Vienna, Berlin, and Paris.

OTHER FOREIGN PORTS.

Representatives of the Service have been retained at Vera Cruz, Mexico; Rio Janeiro, Brazil; Yokohama and Kobe, Japan; Hongkong, China, and Constantinople, Turkey, who have kept the Department informed regarding the progress of epidemic disease in their respective countries and have assisted in carrying out the quarantine regulations for foreign ports.

SPECIAL INVESTIGATIONS.

A medical officer of the Service has made an inspection of the various ports on the Pacific coast of Central America; also the ports of Colombia and Ecuador, with a view to ascertaining the danger of transmission of yellow fever from these ports to the ports on the Atlantic coast of Central America which have direct communication with the United States. An inspection has also been made of the manner of gathering and disinfecting rags in Egypt which are shipped to the United States.

AMENDMENTS TO QUARANTINE REGULATIONS.

Amendments to the quarantine regulations have been promulgated regarding the importation of rags and bone dust; also regarding the treatment of vessels from plague-infected or suspected ports. Bills of health are now issued by United States consuls to vessels bound to any of the possessions or dependencies of the United States in the same manner as to vessels bound to the United States proper.

DOMESTIC QUARANTINE.

The quarantine stations in the United States belonging to the Service at the end of the fiscal year numbered 13 fully equipped stations, employing a total of 27 medical officers, 7 stewards, and 150 attendants, and, in addition, 12 maritime inspection stations, requiring the services of 12 medical officers and 2 attendants.

These stations are distributed as follows: On the Pacific coast, all of which coast is under the national quarantine administration, 4 quarantine and 7 inspection stations; on the Gulf of Mexico, 2 equipped stations—namely, at Ship Island and Tortugas—and 1 inspection station. The Service performs national quarantine for the whole Mississippi coast, and aids, by the reception of infected vessels at Ship Island, the quarantine of Mobile and supplements the Florida quarantine service by its refuge and disinfecting station at Tortugas and by a detention camp at Mullet Key. Measures have been taken to put into effect the act passed at the last session of Congress providing for the erection of a national station at Mullet Key and one near Key West.

On the Atlantic coast the Service has 7 quarantine stations and 4 inspection stations. The coast of Georgia, North Carolina, and Virginia is under national quarantine administration, as is also that of the States bordering upon the Delaware Bay and River. The station on Blackbeard Island, off the coast of Georgia, is likewise a refuge station for vessels from South Carolina.

At Cape Charles, in Hampton Roads, a floating station is maintained on the naval vessel *Jamestown*, and a supplemental station on Fishermans Island, 20 miles distant. On the Delaware a station is maintained near Cape Henlopen, opposite the Delaware Breakwater, and at Reedy Island, 45 miles below Philadelphia.

The transfer of the Savannah quarantine, mentioned in the annual report for 1899, to the national quarantine service, has been completed and the station paid for, as provided in the appropriation act passed at the last session of Congress, and the mayor of Savannah has expressed in writing the satisfaction of the municipal authorities with its voluntary transfer.

The conduct of the domestic maritime quarantine has been harmonious as regards relations with the State and local authorities, there having been, however, two incidents worthy of note, but not affecting efficient administration.

At New York, November 17, 1899, a vessel having arrived from Santos, Brazil, with suspected bubonic plague on board, an inspector was sent, as is customary, to see that the Treasury regulations were being enforced, but was denied access to the quarantine by the deputy officer, in the absence of his chief in Europe. A preliminary injunction was granted by the United States court, and no further difficulty was experienced, the health officer, on his return, explaining that his deputy was carrying out general orders which did not anticipate a matter of this kind.

In the annual report of the State board of health of Florida for 1900 an effort is made to show that the yellow fever in Florida last year was introduced in three different places through the faulty administration of quarantine in Cuba by the Marine-Hospital Service. In the annual report of the service for 1899 (report of the division of domestic quarantine) these charges are properly met.

The new quarantine station at the mouth of the Columbia River has been practically completed during the year.

The operations of the division of domestic quarantine have been directed during the year chiefly against three diseases, viz, yellow fever, plague, and smallpox.

YELLOW FEVER.

As predicted in the last annual report, the yellow fever occurring in Florida, Louisiana, and Mississippi in the fall of 1899 was not widespread. In New Orleans there were 115 cases and 20 deaths reported; at Jackson, Miss., 61 cases and 9 deaths; at Mississippi City, 27 cases and 2 deaths, while in Key West there were reported 1,320 cases and 68 deaths, a mortality of 5.1 per cent; at Miami, 206 cases and 15 deaths.

Fortunately there has been no yellow fever reported in the United States during the year 1900, notwithstanding that the disease has prevailed extensively in Rio, Vera Cruz, and Habana, and to a less degree in a number of ports in the West Indies and Central America, and notably upon the west coast of Africa.

Early in the season officers in the Marine-Hospital Service in the South were enjoined to report promptly to the Bureau any suspicion of yellow fever, and acting assistant surgeons at moderate salaries were appointed in a number of cities along the Gulf coast for the special purpose of keeping watch and making reports, in order that the Bureau might have the earliest possible information, its experience at McHenry, Miss., in 1898, and at the National Soldiers' Home near Hampton, Va., in 1899, demonstrating that with early knowledge a prevention of the spread of the disease may be accomplished. But the disease was not introduced, nor was there any recrudescence.

The preventive measures in the United States may be said to have begun last winter when a medical officer was detailed to inspect and report upon the sanitary condition of all the towns of Central America, both on the Pacific and Atlantic coasts, and acting assistant surgeons were detailed, by order of the President, under the law of 1893, in seven of the ports of Central America to sign bills of health and enforce such sanitary regulations as would prevent the necessity of detaining fruit vessels from these ports at quarantines in the United States, any detention being ruinous to their cargoes. At Vera Cruz a medical officer was also thus detailed who, moreover, kept track of people leaving Vera Cruz for the United States overland, and medical officers were stationed at the three principal crossings on the Texas border from Mexico, namely, Laredo, Eagle Pass, and El Paso, at each of which places a detention camp was established and persons detained unless they had been the requisite length of time from any yellow fever infected locality in Mexico and gave no evidence of infection.

At Habana, where the disease has prevailed extensively and is still prevailing, the quarantine service is under the direction of a marine-hospital surgeon, who is also the chief quarantine officer of the island and is detailed on the staff of the military governor, thus insuring harmony of action between the island military authorities and the Marine-Hospital Service. The regulations have required all baggage from Cuba to be labeled either "Inspected" or "Disinfected," and since the outbreak of yellow fever in Habana all baggage from that port has been and is still being disinfected. All passengers are also examined as to their immunity and are given a card certificate, those who are not immune being subject to detention at northern ports of arrival a sufficient length of time to complete five days from Habana. During this period of detention, which is generally a day and a half, several cases of yellow fever developed among those detained.

Great care was enjoined upon all quarantine officers in the United States, and an important feature has been the taking of temperatures at the regular quarantine inspection, by means of which a person well enough to pass an ordinary visual inspection, though possibly suffering from an infectious disease, may have his disease detected. This provides an effectual means of preventing what has frequently before happened, namely, the passing of an infectious disease in persons braced up or well enough to pass the ordinary muster.

As a precautionary measure, also, Camp Perry, in Florida, was reestablished upon ground leased at a nominal rate. This camp is not only a safeguard for future possible emergencies, but offers a suitable place for the storing and distribution of the camp equipage belonging to the Service.

Regarding the cause of yellow fever, the findings of the commission of the Marine-Hospital Service, identifying the bacillus icteroides of Sanarelli as the causative agent of yellow fever, have been approved in a number of contributed articles in the medical press, and have also excited opposing statements. Based upon these findings, in the laboratory division of the Service eight horses are being subjected to immunizing inoculations, with a view to obtaining a curative and prophylactic serum similar in its action to that for diphtheria. Three of the horses have died, but there are fair prospects of success with the remaining five.

The subject of international compact with regard to the sanitation of cities habitually infected with yellow fever, to which reference was made in my last annual report, is still receiving the attention of the Service by means of correspondence, and I have to report a marked interest and approval of the suggestion. Much preparatory work must be done before the matter can be brought forward in proper shape, and the matter will be the subject of discussion at the meeting of the Pan-American Medical Congress in Habana in December of this year.

The thorough cleansing and admirable sanitary administration under the Army in Habana is but the first of three steps necessary. The second is a thorough system of sewerage and drainage, to which attention is now being given; but in a city where yellow fever has prevailed annually the destruction of old houses and the thorough and scientific disinfection of others is necessary before a feeling of safety with regard to the disease may be attained. The necessity of this latter measure was illustrated in Vera Cruz, where for a great number of years no outbreak of yellow fever appeared, but when in the progress of municipal improvement in 1898 a large number of buildings were torn down an epidemic immediately followed.

PLAGUE IN SAN FRANCISCO.

On March 6, 1900, a death from plague occurred in the Chinese quarter of San Francisco and was officially reported by telegrams of March

7 and 8, since which time there have been, up to the date of this report, 18 cases reported, all resulting in death. The slow extension of the disease has excited comment and suggests the inquiry whether this is in accord with the natural history of the disease or whether the climatic conditions of San Francisco have a bearing thereon, particularly the prevalence of strong winds, the dryness of the atmosphere during the warmer season, and the low temperature during the rainy season, these being conditions the opposite of those which frequently foster contagious diseases, namely, the combination of heat and moisture. It was reported that the first case discovered was that of a Chinaman who had been a resident of Chinatown for fifteen years and had been under treatment for another disease for six months. (See Surgeon Gassaway's telegram of March 8, 1900.) The two subsequent cases were reported as having been residents of San Francisco for over a year. (See Surgeon Kinyoun's telegram of March 21, 1900.) Therefore, it was a matter of uncertainty, and one adding to the apprehension, how long the disease may have been prevailing or how widely it might be distributed.

The first telegram received, March 7, was from Surgeon Gassaway, the officer in command of the marine hospital in San Francisco, and the second was from Surgeon Kinyoun, in charge of the United States quarantine station on Angel Island, who stated that the city bacteriologist had brought him specimens for examination. Surgeon Gassaway reported that the local board of health had already cordoned 12 blocks of Chinatown, and had instituted other well-known measures for the suppression of the disease.

The Chinese consul and the Chinese Six Companies investigated and reported upon the history of the individual who had been afflicted.

On March 19 two additional suspected cases were reported, but they were not proven absolutely by bacteriological examination to be cases of plague, though very suspicious. In the meantime the local health authorities appointed inspectors for a house-to-house inspection of Chinatown, placed guards at each place of exit from city by railroad or water to examine every Chinaman attempting to leave the city, ordered a disinfection of sewers and dwellings, and though at first without funds were later supplied with same by the city government.

The assertions of the board of health as to presence of plague were strongly combated by the daily papers.

On March 22 the president of the board published in the daily papers a résumé of the situation, declaring Chinatown to be infected with plague and protesting against the criticisms of the press. (See telegram from Surgeon Gassaway March 22.)

The action of the Service consisted in authorizing its two surgeons to meet and advise with the local board of health, and on the announcement of the first case, on March 8, Surgeon Gassaway was directed to make suggestions to the local board concerning the use of the Haffkine prophylactic, or the curative serum, with the injunction that the Haffkine prophylactic should not be used upon those known or supposed to have been directly exposed to plague, the antipest or curative serum to be utilized in these cases. Both of these preparations had recently been used with good effect in Honolulu, and a quantity then in San Francisco was turned over to the board of health. In the Bureau telegram of March 8 Surgeon Gassaway was further directed to impress upon the board of health that these measures were urged not so much through apprehension of immediate great danger, but rather to quickly prevent the lodgment of the disease or establishment of an epidemic focus which might cause occasional outbreaks throughout a year. A copy of this telegram was directed to be given to Surgeon Kinyoun.

By March 28, there having been no new developments, confidence seems to have been restored, and the house-to-house inspection of Chinatown was discontinued on that date. By April 10 all proceedings in Chinatown were discontinued, and Surgeon Gassaway reported no suspicious cases. There had been to this time four cases reported.

On April 26 another case was reported, and in May, to the 20th, there were four deaths and two suspected cases, making in all nine deaths from the beginning.

On May 15 Surgeon Kinyoun wired that the disease was now regarded as epidemic, as no connection could be traced between the cases. On the same date he was wired to attend the joint meeting of the local board of health and the merchants' association and ascertain what was expected of the Service, and was notified that the law of 1890 (a stronger law than that of 1893) could be brought into use. An outline of measures, as suggestions, was also telegraphed Dr. Kinyoun for his use in advising with the local board of health. These suggestions were well received by the local authorities.

Shortly after, Surgeon Kinyoun was ordered to visit Stockton and other places where the disease might possibly exist, and was furthermore authorized to employ such acting assistant surgeons as he might deem necessary. For the protection of other States, on May 17 inspectors were placed on the borders of California—one at Reno, Nev., another near the Oregon border, and two on the Arizona border. At the same time four regular officers were directed to report to Dr. Kinyoun as his assistants.

On May 19 it was reported by Surgeon Kinyoun that the local board of health had officially stated that plague existed in San Francisco, had requested the State board to act, had taken steps to prevent an exodus, and that he (Dr. Kinyoun) was requested to notify transportation lines. The local board then started a house-to-house inspection and attempted the use of the Haffkine preventive, which had been largely used in Honolulu. Difficulty was experienced by the board in carrying out these measures and an exodus was reported. In view of this exodus, inspectors on the border were given instructions to require certificates of Asiatics leaving the State, on account of their known special susceptibility to the plague.

Up to this time Service measures had been conducted under the law of 1893, which requires the Service to aid and cooperate with State and local boards of health, and under the interstate quarantine regulations of the Department, issued in accordance with this law, September 27, 1894.

May 19 Surgeon Kinyoun suggested that he be empowered to act under the law of 1890, and in view of the growing importance of the situation and the fact that Surgeon Kinyoun was in charge of the maritime quarantine on Angel Island it was deemed necessary to inquire of him whether he felt able to continue in this double duty, to which he replied in the affirmative.

On account of the threatened and actual exodus from Chinatown, and the want of success of the measures taken by the local board of health, the Bureau having been informed that the disease was epidemic, and it being impossible to ascertain how widespread it might be, it was deemed necessary to provide regulations under the law of 1890 to give greater effect to the measures which had already been taken for the protection of adjoining States. Great apprehension was being manifested on the part of adjoining States and it was impossible to determine how rapid might be the spread of the disease. Accordingly immediate action seemed necessary and was taken with the understanding that the continuance or removal of the restrictions thus placed on travel would depend upon developments.

In view of subsequent events, it should be stated here that the disease had appeared only among Mongolians and in Chinatown, and that its history in other countries has shown that Asiatics are much more susceptible to the infection of plague than other races.

A statement of the situation, with list of cases to May 20, was prepared in the shape of a memorandum and transmitted with a letter from the Bureau to the Secretary of the Treasury requesting that the matter be brought to the attention of the President and that the latter authorize the Secretary of the Treasury to promulgate regulations as provided by the law of 1890. The Secretary presented the matter formally to the President, with request that such authorization be granted, and the President's written approval was given May 21. Additional regulations were thereupon issued by the Secretary in a printed circular after consultation with the law officer of the Department. The provisions of this circular were simply intended to aid in the prevention of the spread of the disease by common carriers and were telegraphed to Surgeon Kinyoun as soon as signed.

Excepting that the law of 1890, under which these regulations were issued, provides penalties for infraction of its provisions, the regulations were no more restrictive than regulations which have been heretofore repeatedly enforced in the South with regard to yellow fever. It was asserted that an effort was being made to prevent anyone leaving the State without certificate from the Marine-Hospital Service representative. No such widespread provision was contemplated or attempted.

The operations of the medical officer at San Francisco were thereafter directed toward preventing infected persons from leaving the State, and the difficulties caused by misunderstandings with regard to these measures are set forth in the telegraphic correspondence elsewhere printed.

In the meantime the local board of health established a cordon of police around San Francisco and were offering immunizing inoculations and attempting a house-to-house inspection of Chinatown. At the same time it was reported that the State board of health had given out for publication in the local press that there was no plague in San Francisco. Later on it was reported by telegraph that the State board of health had requested the Service to continue its operations, and that it commended the local board of health.

On May 28 a restraining order was granted by Judge Morrow, of the United States circuit court, declaring the quarantine established by the local board of health to be illegal, and that the special measures against the inhabitants of Chinatown, being racial, were contrary to the Constitution and treaties, and this was affirmed by a subsequent opinion, which appears in full in the report of the division of domestic quarantine. It was declared in the first opinion (May 28) that the regulations under which the local board of health were acting were invalid, inasmuch as the same should have been issued not by the local board of health, but, under the municipal laws, by the board of supervisors. The board of supervisors immediately thereafter took the requisite action, authorizing the local board of health to quarantine and take such measures as might be necessary, whereupon the local board of health ordered an absolute cordon around Chinatown.

On May 31 the city board of health, by resolution, requested the cooperation of the Service and took measures toward providing for a detention camp to accommodate 7,000 persons on Angel Island or Mission Rock, and while arrangements for this detention camp were in progress another injunction suit was brought and granted, the board of health being enjoined from removing the Chinese to the detention camp.

On June 14 the Bureau was wired by its officer at San Francisco that the Federal court had ordered the abandonment of the cordon around Chinatown, and had also granted a writ of habeas corpus in the case of a quarantined Chinaman. On account of these decisions of the court, there being at the same time no special development of the disease, the quarantine in San Francisco was discontinued by the local board of health.

On June 23, the developments not having demonstrated the necessity for continuance of the restrictions on travel involved by the border inspection, which was inaugurated May 17, this inspection was stopped; but the Service, through its officers, continued and still maintains as close observation as possible, with a view to detection of cases and assisting either the local or State board should necessity arise.

To the date of this report there have been 18 cases, but the disease shows no disposition to rapidly spread, being almost entirely of the bubonic variety. Whether this slow spread may be attributed to climatic conditions or other causes, and what further development of the disease there may be, must be left for future observation.

SMALLPOX.

During the fiscal year ended June 30, 1900, 14,998 cases of smallpox, with 731 deaths, from 44 States and Territories, were reported. The disease has been of a mild character, the death rate being less than 5 per cent. This disease is considered one which it is the duty of localities themselves to suppress; but, following out the plan heretofore adopted by the Service, the assistance rendered to State and local boards of health has been by the distribution of publications and the detail of officers to make investigations and to personally explain the methods to be adopted in the suppression of the disease in communities requesting such advice. In pursuance of this plan, officers have been detailed during the year on the staffs of the governors of three States.

LEPROSY COMMISSION.

In accordance with the provisions of an act of Congress approved March 2, 1899, mentioned in the annual report for 1899, a commission consisting of three medical officers of the Service has been appointed to investigate the prevalence of leprosy in the United States. This commission is now pursuing its investigations.

HYGIENIC LABORATORY.

Practical and valuable investigations have been conducted as to the value of various disinfectants, and, as the result of this work, publications have been issued and distributed on the subject of disinfection by sulphur and by formaldehyde. Other agents have been investigated, but not so extensively as these two.

Original research has been pursued with the purpose of ascertaining the viability of the plague bacillus under varying conditions, and a preliminary note of conclusions by the director of the laboratory has appeared in the Laboratory Bulletin.

The work of preparing Yersin's curative serum for use against bubonic plague is still in progress, with encouraging prospects, as is also that of preparing the serum of Sanarelli to be used in the prevention and in the treatment of yellow fever, this also with fair prospects of ultimate success. In addition to the plague and yellow-fever serums above named, horses are also being treated with a view to the production of a serum for the prevention of typhoid fever and pneumonia. Experiments have been conducted with vaccine lymph, both dry and glycerinized, resulting in proof of the superiority of the latter on account of its greater freedom from bacteria.

The Marine-Hospital Service now numbers among its officers 8 skilled bacteriologists, the experience of some of whom is very wide in the study of various infectious and contagious diseases.

The director of the laboratory makes recommendations for continued investigations into the subject of yellow fever and for systematic investigation into the cause of dengue, smallpox, malaria, and dysentery. In this connection I have to invite attention to the crowded condition of the laboratory and its unsuitable location on one of the floors of a general office building, and to urgently renew my former recommendations looking to the acquirement of a proper site and the erection of a strictly laboratory building as a measure demanded in the interest both of efficiency and safety.

CONCLUSION.

The following reports of the officers in charge of the several divisions of the Bureau furnish a detailed account of the varied and important transactions of the Service, and will show the responsibility and the vast amount of labor thrown upon it, both at Washington and at its numerous stations in the United States, and in foreign countries. The growth of the Service has been rapid, and the time will come, and is near at hand, when some legislation placing it on a broader and stronger legal footing will be required.

I can not close without expressing my appreciation of your confidence and support in the efforts which have been made to meet the many specified and implied obligations devolving upon the Service; and acknowledgment is also due the Assistant Secretary of the Treasury, Gen. O. L. Spaulding, for his valuable counsel and ever-ready assistance.

I have the honor to remain, respectfully,

WALTER WYMAN,
Surgeon-General, Marine-Hospital Service.

DIVISION OF PERSONNEL AND ACCOUNTS.

REPORT OF THE DIVISION OF PERSONNEL AND ACCOUNTS.

By P. M. Carrington,

Surgeon, U. S. Marine-Hospital Service, in Charge.

This division was formed under the reorganization of the Bureau promulgated by the Surgeon-General, with the approval of the Acting Secretary of the Treasury, September 28, 1899, previous to which time it was known as the Division of Personnel and Relief, and the officer in charge was, until the creation of the office of chief clerk, detailed as acting chief clerk.

The division has supervision of matters relating to the personnel, appointments, promotions, transfers, discipline, etc.; auditing of accounts for personal services and travel and final preparation for signature of all bills and accounts, of whatever character, and the mailing of checks; bookkeeping and account of the various appropriations under the control of the Bureau; preparation for publication of the official semiannual list of medical officers, etc., and the preparation and mailing of the weekly list of the changes of station.

The medical officer in charge has medical supervision over the claims of keepers and surfmen of the Life-Saving Service for the benefits of the act of May 4, 1882. Three hundred and eighty such applications were acted on during the year.

PERSONNEL.

COMMISSIONED MEDICAL CORPS OF THE SERVICE.

At the beginning of the fiscal year the commissioned officers were 83 in number. During the year 27 physicians have, after passing the examination required by the regulations, been commissioned as assistant surgeons.

The corps has lost 1 officer by resignation and 2 by death.

Five passed assistant surgeons have been promoted to the grade of surgeon, and 1 assistant surgeon was promoted to the grade of passed assistant surgeon.

The corps consisted at the close of the fiscal year of 107 commissioned officers, as follows:

Supervising surgeon-general	1
Surgeons	29
Passed assistant surgeons	21
Assistant surgeons	56
Total	107

Assistant Surgeon Decker, who was on waiting orders at the date of the last report, having reported himself physically fit for duty, was relieved from waiting orders and placed on duty to date from October 7, 1899.

Nineteen physicians were invited to appear before the board of examiners which convened in New York City, June 27, 1899. The report of this board was rendered on July 15, 1899, and 8 of the candidates attained the required average and are included in the number above mentioned as having been commissioned assistant surgeons during the year.

Three boards for the examination of candidates for appointment as assistant surgeon were convened during the year. Ninety-three physicians were invited to appear for examination; 76 appeared before the three boards; 19 attained the required average and were commissioned as assistant surgeons.

Two boards have been convened for the examination of officers for promotion, and all officers ordered to examination for promotion have passed successful examinations.

Two boards have been convened for the physical examination of candidates for appointment in the Revenue-Cutter Service.

The increase of 24 in the commissioned corps, and the increase in the number of surgeons from 24 to 29, involves an annual increase in salary accounts of $41,400.

The increase in the number of medical officers was rendered necessary—

First. By the establishment of two additional first-class relief stations—Fort Stanton, N. Mex., and Dutch Harbor, Alaska.

Second. The raising of one relief station from the third to the second class—Milwaukee, Wis.

Third. The establishment of the purveying depot in New York.

Fourth. The detail of additional medical officers for the medical inspection of immigrants, including details to the various United States consulates in Europe.

Fifth. The assumption by the Service of quarantine functions in the island possessions of the United States.

Sixth. The necessity during the year of filling the places of officers previously taken from the regular stations of the Service on account of the establishment of new relief and quarantine stations in the United States, and the assumption by the Service of the quarantine service in the island of Cuba.

NONCOMMISSIONED OFFICERS.

ACTING ASSISTANT SURGEONS.

At the beginning of the fiscal year there were on duty 95 acting assistant surgeons and 11 sanitary inspectors, the title of the latter being changed during the year to acting assistant surgeon.

Seven acting assistant surgeons have been appointed and 2 resigned. The number in the service at the close of the fiscal year is 111.

Temporary acting assistant surgeons have been employed in emergencies during the year as shown by the following table:

Branch of the service in which employed.	In service July 1, 1899.	Appointed during year.	Separated from the service.	In service June 30, 1900.
Marine-Hospital Service	16	37	36	17
Quarantine	11	9	8	12
Epidemic	15	37	21	31
Total	42	83	65	60

SANITARY INSPECTORS.

Twenty-four sanitary inspectors were employed during the months of May and June, 1900, for special quarantine and inspection duty in connection with suppression of bubonic plague in San Francisco, Cal.

HOSPITAL STEWARDS.

The total number of hospital stewards at the beginning of the fiscal year was 38, divided as follows:

Hospital steward and chemist, 1; senior hospital stewards, 26; and junior hospital stewards, 11.

One hospital steward resigned, 2 senior hospital stewards have been promoted to the grade of hospital steward and chemist, one transferred to this Service from the Immigration Service, and one senior hospital steward to the grade of hospital steward and assistant chemist.

Six eligibles were certified by the Civil Service Commission and appointed junior hospital steward. One junior hospital steward declined appointment.

The total number of hospital stewards of the three grades in the service at the close of the fiscal year is 44.

HOSPITAL AND QUARANTINE ATTENDANTS.

There were at the beginning of the fiscal year 465 hospital and quarantine attendants. Four hundred and sixty-five have been separated from the service by reason of resignations, deaths, and removal for cause, 547 have been appointed, and the number at the close of the year in the service is 547.

Branch of the Service in which employed.	In service July 1, 1899.	Appointed during year.	Separated from the service.	In service June 30, 1900.
Marine-Hospital Service	322	406	331	397
Quarantine	143	141	134	150
Total	465	547	465	547

OTHER EMPLOYEES.

Other employees of various kinds, not included in the above statement, are accounted for in the following tables:

Inspectors, attendants, laborers, etc.

DOMESTIC SERVICE.

Branch of the Service in which employed.	In service July 1, 1899.	Appointed during year.	Separated from the Service.	In service June 30, 1900.
Epidemic	53	436	458	31

ISLAND POSSESSIONS.

Quarantine attendants	8	48	26	30

CUBAN QUARANTINE SERVICE.

Acting assistant surgeons	21	14	12	23
Attendants	29	445	346	128
Total	50	459	358	151

SPECIAL DETAILS OF COMMISSIONED MEDICAL OFFICERS.

In November and December, on account of the presence of plague, officers were detailed for duty in the offices of the United States consuls as follows, Asst. Surg. V. G. Heiser being already on duty at the port of Naples, Italy:

Surg. G. M. Magruder, London, England.
P. A. Surg. A. C. Smith, Hamburg, Germany.
P. A. Surg. J. A. Nydegger, Cadiz, Spain.
P. A. Surg. Rupert Blue, Genoa, Italy.
P. A. Surg. J. H. Oakley, Queenstown, Ireland.
P. A. Surg. E. K. Sprague, Antwerp, Belgium.
P. A. Surg. A. R. Thomas, Rotterdam, Netherlands.
P. A. Surg. H. W. Wickes, Glasgow, Scotland.
P. A. Surg. J. B. Greene, Bremen, Germany.
Asst. Surg. H. S. Mathewson, Liverpool, England.
Asst. Surg. S. B. Grubbs, Havre, France.
Asst. Surg. J. F. Anderson, Barcelona, Spain.
Asst. Surg. W. C. Hobdy, Southampton, England.
Asst. Surg. G. M. Corput, Marseilles, France.

The medical inspection was discontinued at the Spanish ports on March 30, Passed Assistant Surgeon Nydegger being ordered to Manila, and Assistant Surgeon Anderson being ordered to Marseilles to relieve Assistant Surgeon Corput, who was ordered home on account of sickness.

The medical-inspection service in Europe was discontinued June 30, 1900, eight of the officers being assigned to regular duty in the United States and five assigned in the offices of the consuls-general as follows:

P. A. Surg. A. R. Thomas, London, England.
P. A. Surg. J. B. Greene, Berlin, Germany.
Asst. Surg. S. B. Grubbs, Paris, France.
Asst. Surg. J. F. Anderson, Vienna, Austria.
Asst. Surg. V. G. Heiser, Naples, Italy.

For further particulars in regard to these details reference is made to the report of the officer in charge of the foreign quarantine division.

Upon the request of the Commissioner-General of Immigration, approved by the Assistant Secretary of the Treasury, P. A. Surg. J. B. Stoner was, on March 31, 1900, assigned to duty as medical inspector of immigrants at St. Johns, New Brunswick, subsequently proceeding with the Immigration Service to Quebec.

Surg. Fairfax Irwin was ordered from Switzerland, where he was on leave of absence, on August 16 to proceed to Marseilles, Lisbon, and Oporto to investigate the reported prevalence of plague.

Assistant Surgeon Heiser, on duty in the office of the United States consul at Naples, was ordered to Cairo and Alexandria, Egypt, for special investigation relating to plague.

In accordance with the provisions of an act of Congress approved March 2, 1899, the following commission has been appointed to investigate the prevalence of leprosy in the United States:

Surg. J. H. White, chairman.
Surg. G. T. Vaughan.
P. A. Surg. M. J. Rosenau.

This commission is now pursuing its investigations.

Upon the request of Hon. A. D. Candler, governor of Georgia, the following officers were successively detailed for duty under his direction in connection with measures taken for the suppression of smallpox in the State of Georgia.

P. A. Surg. C. P. Wertenbaker.
Asst. Surg. R. H. von Ezdorf.
P. A. Surg. (now Surgeon) T. B. Perry.

The following have been detailed to represent the Service at the meetings of the various medical and other associations set opposite their names:

Surgeon Bailhache, Convention of the Decennial Revision of the United States Pharmacopœia at Washington, D. C., May 2, 1900.
Surgeon Bailhache, American Medical Association at Atlantic City, June 5–8, 1900.
Surgeon Wasdin, American Medical Association at Atlantic City, June 5–8, 1900.
Surgeon McIntosh, Medical Association of Alabama at Montgomery, April 17–21, 1900.
Passed Assistant Surgeon Cobb, American Climatological Association at Washington, D. C., May 1–3, 1900.
Passed Assistant Surgeon Wertenbaker, Association of Military Surgeons at New York, May 21 to June 2, 1900.
Passed Assistant Surgeon Geddings, Convention of Decennial Revision of the United States Pharmacopœia at Washington, D. C., May 2, 1900.
Passed Assistant Surgeon Rosenau, American Medical Association at Atlantic City, June 5–8, 1900.
Passed Assistant Surgeon Rosenau, Thirteenth Session International Congress of Medicine. Paris, August 2–9, 1900.
Passed Assistant Surgeon Rosenau, Medico-Legal Society at New York, February 21–22, 1900.
Passed Assistant Surgeon Sprague, American Public Health Association (Laboratory Committee) at Minneapolis, Minn., October 30 to November 3, 1899.
Passed Assistant Surgeon Vaughan,
Passed Assistant Surgeon Geddings,
Passed Assistant Surgeon Rosenau, } National Pure Food and Drug Congress at Washington, D. C., March 7, 1900.
Assistant Surgeon Heiser, Tuberculosis Congress, Naples, Italy, April, 1900.

Report on Fifty-First Annual Meeting of the American Medical Association.

By Surg. Preston H. Bailhache.

Treasury Department,
Office of the Supervising Surgeon-General M. H. S,
Washington, June 12, 1900.

Sir: In accordance with instructions contained in your letter of May 29, 1900, detailing me as delegate to represent the Service at the fifty-first annual meeting of the American Medical Association, held at Atlantic City, N. J., June 5–8, 1900, I have the honor to report as follows:

The several sections were well attended and many valuable papers were read and discussed.

Matters of interest to the Service may be here stated, and among them the following resolution which was offered by Dr. Dudley S. Reynolds, of Louisville, Ky., and adopted:

DELEGATES TO THIRD PAN-AMERICAN MEDICAL CONGRESS.

"*Resolved*, That the nominating committee be, and is hereby, instructed to present in its regular report the names of two members for each State, Territory, the District of Columbia, and for the Army, Navy, and Marine-Hospital Service to represent the American Medical Association in the capacity, respectively, of delegates and alternates at the Third Pan-American Medical Congress, to be held in Habana, Cuba, December 26, 27, 28, and 29, A. D. 1900."

REPORT OF COMMITTEE ON DEPARTMENT OF PUBLIC HEALTH.

The report of the committee on department of public health was unimportant, as nothing tangible had been accomplished in its efforts before Congress. It was, however, continued on motion of Dr. H. O. Walker, of Detroit, Mich., and a resolution offered to appropriate $400 in defraying actual expenses in furtherance of the work failed in the board of trustees, to which it had been referred.

COMMITTEE OF FIVE APPOINTED TO PRESENT APPROVAL TO CONGRESSIONAL COMMITTEE.

A committee of five was appointed, with instructions to present its approval to the Congressional committee in connection with the army bills, which latter were then taken up and discussed.

ANTIVIVISECTION BILL.

Concerning the antivivisection bill (S. 34) the committee adopted a resolution the first paragraph of which, covering the gist of the matter, is as follows:

"*Resolved*, That the National Legislative Conference, composed of delegates from the State medical societies of the United States, assembled in the city of Washington, on May 2, 1900, in response to the invitation of the American Medical Association, hereby most earnestly protests against the passage of Senate bill 34, generally known as the 'antivivisection bill.'"

POLLUTION OF WATER SUPPLIES—INSPECTION OF IMMIGRANTS.

A bill for the investigation of the pollution of water supplies and another bill providing for the inspection of immigrants at the port of embarkation were both indorsed by the committee and recommended to the State societies for indorsement, these measures to be placed in the hands of the Marine-Hospital Service.

NATIONAL AND STATE LEGISLATION.

The committee on national legislation, in closing its report, recommended that the American Medical Association request affiliating medical societies of the several States and Territories to provide in their constitution for the appointment of a State legislative committee, whose special duty it shall be to consider all medical legislation arising in the State legislatures and in the national Congress, and advise their constituent members thereon; further, the appointment of one member and an alternate to represent their society when called by the committee on national legislation to a general conference in Washington, each society paying out of its treasury the expenses of such delegate or alternate to said conference, and suggested that such committee shall be carefully selected with respect to special individual qualifications for such service, and that the tenure of office should depend on individual fitness for the position.

REPORT OF GENERAL EXECUTIVE COMMITTEE.

The general executive committee of the association recommended, in accordance with the request of the section on State medicine, that the name of that section be changed to "the section of hygiene and sanitary science." This recommendation was concurred in by the association.

It also recommended that the opposition to the antivivisection bill be continued and earnestly pressed. Adopted.

It also recommended that a committee be appointed by the association on the organization of the profession throughout the United States to cooperate with the committee on national legislation; this committee to consist of one member from each State and Territory represented in the association. The Army, Navy, Marine-Hospital Service, and Bureau of Animal Industry were subsequently added to this committee.

BERTILLON CLASSIFICATION.

The executive committee did not recommend the substitution of the Bertillon classification of the cause of death as a basis for mortality statistics of the census of 1900, as presented by resolution of section on State medicine, although an effort was made in the general meeting to overrule its decision.

It recommended the work of the legislation committee in regard to urging before Congress the passage of H. R. 11139 and S. 4171 to protect the Southern coast of the United States, thereby strengthening the national quarantine service.

REPORT ON REVISION OF THE CONSTITUTION.

The committee on medical legislation offered the following, which, after amendment by the joint committee (which is incorporated nerein), was adopted:

SECTION 3. *Standing committee.*—The committee on legislation shall consist of three members, to be appointed annually by the president, one of whom shall be a resident of Washington, one of Maryland, and one of Pennsylvania. It shall be the duty of this committee to represent before Congress the wishes of this association regarding pending medical and sanitary legislation. This committee shall also invite to an annual conference to be held at Washington one delegate each from the Army Medical Service, the Navy Medical Service, the Marine-Hospital Service, the United States Bureau of Animal Industry, and from each State society in affiliation with the American Medical Association, such conference to consider questions of national medical and sanitary legislation and report to their representative bodies for action. This body shall have power to act ad interim when necessity requires.

ADJOURNMENT.

The association adjourned June 8 to meet in St. Paul, Minn., the first week in June, 1901.

THE SERVICE EXHIBIT.

I must not omit to mention a practical exhibit made by the Marine-Hospital Service before the section of pathology of the association. This consisted of one of the new portable or traveling laboratories lately devised and authorized by the Bureau.

The laboratory consists of a very complete line of apparatus for bacteriological and pathological work packed in nine cases of such a design as to combine the desirable feature of strength and portability.

A special feature of this laboratory is that it is not necessary to unpack the whole in order to get at any special apparatus or line of apparatus, and therefore actual work of investigation could be commenced within a very short time after the receipt of the cases containing the outfit at any given point.

The ingenuity displayed in the packing of the apparatus, the character of the apparatus itself, and the intention evidenced by its construction excited much comment of a highly favorable nature.

Respectfully,

Preston H. Bailhache,
Surgeon, M. H. S.

Surgeon-General Marine-Hospital Service.

Report on Meeting of Alabama State Medical Society, April 17–21, 1900.

By Surg. W. P. McIntosh.

Office of Medical Officer in Command,
Marine-Hospital Service,
Mobile, Ala., April 24, 1900.

Sir: I have the honor to make the following report of the transactions of the Alabama State Medical Society at the meeting in Montgomery, April 17 to 21.

FIRST DAY—TUESDAY.

The annual message of the president was read. In this message the subject of quarantine was touched upon. The people of the State were warmly congratulated upon the escape from an epidemic of yellow fever during the past summer. The credit for this was given as "splendid tribute to both the quarantine system of the State and its successful administration." Furthermore, it was stated that this protection from contagious diseases had been "afforded at wonderful small cost, only $3,600 having been expended for State quarantine in 1898 and about $6,000 in 1899." The question of vaccination was touched upon, and the speaker recommended that an effort be made to secure the enactment of a law of compulsory vaccination at the next session of the general assembly.

On the subject of vivisection the speaker quoted largely from the address of President Keen, of the American Medical Association. He indorsed the position taken by Professor Keen, and pointed out that should the Gallinger bill become a law it would stop the experimental work of the Bureau of Animal Industry and of the three medical departments of the Government—the Army, the Navy, and the Marine-Hospital Service. Dr. LeGrand recommended that the association instruct the State board of censors to address a letter, setting forth the importance of vivisection to the medical profession and the people, to our Senators and Representatives in Congress, and urging them to make every effort to defeat Senator Gallinger's bill.

At the evening session reports of the vice president, secretary, and treasurer, with a number of papers were read.

SECOND DAY—WEDNESDAY.

The morning session was called at 9 o'clock. After the usual order of business had been finished a paper on "Uric acid" was read by Dr. C. W. Wilkinson, of Montgomery. This was one of the ablest papers read during the meeting and showed considerable original work.

The Jerome-Cochran lecture, which was to be one of the features of this day, was not delivered, as Prof. William Osler, of Baltimore, who was to make the address, telegraphed that owing to sickness he was unable to be present. A number of other papers were read on various subjects.

The evening session met at the Auditorium. The monitor's address was delivered, after which the annual oration was delivered by Dr. Rhett Goode, of Mobile. This was agreed by all to be the ablest effort the association had listened to for years. Aside from the rhetorical portion of the paper, the subject of quarantine was dealt with altogether; in fact the title of the paper was "Quarantine—maritime and land." After entering into and fully explaining the workings of a quarantine station the orator explained the splendid work done in Habana, Cuba, and elsewhere by the Marine-Hospital Service. He fully indorsed this Service and strongly advised that all quarantine matters should be placed in its hands, the State and county boards acting in unison therewith.

THIRD DAY—THURSDAY.

Papers read by Drs. Hill, Thigpin, Westmorland, Lloyd, and others.

FOURTH DAY—FRIDAY.

This day was occupied with the revision of the rolls of the county societies, election and installation of officers, etc. Dr. R. M. Cunningham, of Birmingham, was elected president; Drs. V. P. Gaines, of Mobile, T. L. Robinson, of Birmingham, and W. M. Wilkinson, of Montgomery, have been elected members of the State board of health.

* * * * * * *

Respectfully, W. P. McIntosh,
Surgeon, M. H. S.

Surgeon-General Marine-Hospital Service.

OFFICERS DETAILED FOR QUARANTINE DUTY IN PHILIPPINE ISLANDS AND HAWAII.

Under Executive order of January 3, 1900, the Service took charge of the quarantine service in the Philippine Islands, P. A. Surg. J. C. Perry being detailed as chief quarantine officer, and three medical officers and one hospital steward ordered to report to him for duty.

Under the provisions of the act of Congress approved April 30, 1900, the Service assumed charge of the quarantine service in the Hawaiian Islands, Surg. D. A. Carmichael, who had been on duty in the office of the United States consul-general at Honolulu, being placed in command of the quarantine station at Honolulu. Two assistant surgeons and one hospital steward have been ordered to report to him for duty.

ACCOUNTS.

VOUCHERS PASSED FOR PAYMENT AND SETTLEMENT.

During the year approximately 16,606 vouchers were passed by this division for payment or settlement. The following is a statement of these vouchers in detail:

Paid by Disbursing Clerk G. A. Bartlett	13,861
86 accounts of special disbursing agents, containing	608
Referred to the Auditor for examination and settlement	337
Vouchers on account of Cuban quarantine service	1,800
Total	16,606

Of the total number of vouchers passed, 6,000 vouchers for salaries, commutation of quarters, traveling expenses, advertisements, and transportation were also audited in this division.

FINANCIAL STATEMENT.

RECEIPTS AND EXPENDITURES, UNITED STATES MARINE-HOSPITAL SERVICE, FOR THE FISCAL YEAR ENDED JUNE 30, 1900.

The balance of the Marine-Hospital fund available at the commencement of the fiscal year was $682,024.33, and the receipts from all sources $916,361.60. The expenditures were $825,072.51.

Summary, Marine-Hospital fund.

Balance July 1, 1899		$682,024.33
Receipts tonnage tax		876,445.93
Repayment care foreign seamen, medical and hospital supplies, including Cuba, Porto Rico, and Philippines		39,915.67
Total		1,598,385.93
Expenditures:		
Maintenance of stations, purveying depot, etc	$797,032.51	
Salaries, Supervising Surgeon-General's Office	28,040.00	
Total		825,072.51
Balance July 1, 1900		773,313.42

Statement of appropriations, quarantine service, 1900.

Appropriation, July 1, 1899	$150,000.00
Deficiency appropriation, act February 9, 1900	25,000.00
Deficiency appropriation, act June 6, 1900	35,000.00
Repayment care foreign seamen, etc	439.09
Total available	210,439.09
Expenditures July 1, 1899, to June 30, 1900	210,159.36
Balance July 1, 1900 [a]	279.73

Summary of expenditures July 1, 1899, to June 30, 1900.

Name of station.	Maintenance of stations, officers' salaries, repairs to vessels, etc.	Medical supplies and miscellaneous.	Total.
Reedy Island	$18,084.52	$1,352.07	$19,436.59
Delaware Breakwater	6,105.39	117.34	6,222.73
Cape Charles	16,840.48	222.55	17,063.03
Cape Fear	7,879.66	603.32	8,482.98
Brunswick	5,082.17	164.27	5,246.44
South Atlantic	15,595.25	1,931.02	17,526.27
Tortugas	19,012.38	877.09	19,889.47
Gulf	26,326.08	1,569.64	27,895.72
San Diego	6,392.28	1,220.67	7,612.95
San Francisco	42,597.56	2,300.74	44,898.30
Port Townsend	13,743.85	1,113.53	14,857.38
Astoria	7,991.66	429.85	8,421.51
Hawaii	803.40		803.40
Porto Rico	3,710.91		3,710.91
Miscellaneous		835.51	835.51
Repairs and supplies, steamer Powhatan	7,256.17		7,256.17
Total	197,421.76	12,737.60	210,159.36

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[a] Estimated outstanding accounts will require this balance.

Preventing the spread of epidemic diseases.

Summary of expenditures July 1, 1899, to June 30, 1900:		
Balance July 1, 1899		$284,996.08
Appropriation, act June 6, 1900		500,000.00
Repayment, medical and hospital supplies, including Cuba, Porto Rico, and Philippines		20,112.88
Total available		805,108.96
Expenditures July 1, 1899, to June 30, 1900:		
Foreign medical service: Yokohama, Hongkong, Hawaii, Central America, Mexico, and including special detail medical officers to European ports	$65,475.37	
Sanitary inspection in United States	47,149.32	
Final payment steamer *Sanator*	41,341.00	
Disinfecting chambers and supplies for *Sanator*	11,768.04	
Steam yacht *Wapiti*	15,000.00	
Condenser and repairs *Wapiti*	8,183.52	
Disinfecting chambers, Cuba and Philippines	10,660.00	
Repairs to steamer *Bratton*	2,318.00	
Yellow fever epidemic, attendants, guards, etc., and post disinfection	78,698.61	
Smallpox epidemic Texas border	18,825.13	
Gulf: Repairs to Welch & Zamora	1,879.10	
Savannah, Ga., quarantine [a]	18,934.23	
Pascagoula, Miss	2,123.40	
Leprosy investigation (act March 2, 1899)	844.93	
San Francisco, Cal., bubonic plague	6,226.66	
Medical and hospital supplies for various stations	7,099.69	
		336,527.00
Balance July 1, 1900		468,581.96

Appropriations for marine hospitals, act March 3, 1891.

Mobile, Ala., amount of appropriation	$1,500.00
Balance July 1, 1900	1,500.00

Appropriations for marine hospitals, act March 3, 1899, transferred to Supervising Architect.

Boston, Mass., for laundry building	$5,000.00
Cleveland, Ohio, isolation ward and mortuary	3,500.00
Detroit, Mich., laundry building	3,000.00
Key West, Fla., iron fence	1,550.00
Memphis, Tenn., fence	500.00
New Orleans, La., surgical operating room, etc	3,000.00
Wilmington, N. C., laundry building, etc	2,000.00

Appropriations for quarantine stations, act August 1, 1888.

Cape Charles quarantine:	
Balance July 1, 1899	$2,215.48
Balance July 1, 1900	2,215.48

Chesapeake Bay quarantine station, act March 3, 1893.

Balance July 1, 1899	$6,935.00
Balance July 1, 1900	6,935.00

Gulf quarantine station, acts March 3, 1891; August 5, 1892, and August 18, 1894.

Balance July 1, 1899	$1,347.57
Balance July 1, 1900	1,347.57

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[a] Station acquired by transfer from city of Savannah to Treasury Department April 18, 1899.

South Atlantic Quarantine Station, act March 2, 1895.

Balance July 1, 1899 (alteration to steamer for hospital barge)	$1,000.00
Balance July 1, 1900 (alteration to steamer for hospital barge)	1,000.00

Brunswick, Ga., act June 4, 1897.

Balance July 1, 1899	$4.75
Balance July 1, 1900	4.75

South Atlantic Quarantine Station, act June 11, 1896.

Balance July 1, 1899	$768.22
Balance July 1, 1900	768.22

Brunswick, Ga., act June 11, 1896.

Balance July 1, 1899	$340.12
Balance July 1, 1900	340.12

Gulf Quarantine Station, act June 11, 1896.

Balance July 1, 1899	$127.46
Balance July 1, 1900	127.46

Port Townsend Quarantine Station, act June 11, 1896.

Balance July 1, 1899	$372.70
Balance July 1, 1900	372.70

Delaware Breakwater Quarantine Station, act June 4, 1897.

Balance July 1, 1899	$2.00
Balance July 1, 1900	2.00

South Atlantic Quarantine Station, act June 4, 1897.

Balance July 1, 1899	$953.02
Balance July 1, 1900	953.02

Delaware Breakwater Quarantine Station, act July 1, 1898.

Balance July 1, 1899	$9.25
Repayment	3.00
Balance July 1, 1900	12.25

Cape Charles, Va., Quarantine Station, act July 1, 1898.

Balance July 1, 1899	$15.00
Balance July 1, 1900	15.00

Brunswick, Ga., Quarantine Station, act July 1, 1898.

Balance July 1, 1899	$60.00
Expended July 1, 1899, to June 30, 1900	58.00
Balance July 1, 1900	2.00

Gulf Quarantine Station, act July 1, 1898.

Balance July 1, 1899	$12,261.83
Expended to June 30, 1900	11,811.79
Balance July 1, 1900	450.04

Tortugas Quarantine Station, act July 1, 1898.

Balance July 1, 1899	$112.00
Repayment	7.76
Balance July 1, 1900	119.76

South Atlantic Quarantine Station, act July 1, 1898.

Balance July 1, 1899		$400.30
Expended to June 30, 1900		400.30

San Diego, Cal., act July 1, 1898.

Balance July 1, 1899		$1,000.00
Expenditures to June 30, 1900		1,000.00

San Francisco, Cal., act July 1, 1898.

Balance July 1, 1899		$3,700.00
Expenditures to June 30, 1900		3,700.00

Astoria, Oreg., Quarantine Station, act July 1, 1898.

Balance, July 1, 1899		$29,809.45
Expenditures to June 30, 1900, viz:		
Transferred to Supervising Architect	$25,000.00	
Maintenance of station and miscellaneous	4,766.16	
		29,766.16
Balance, July 1, 1900		43.29

San Francisco, quarantine fumigating steamer.

Balance, July 1, 1899		$1,016.32
Balance, July 1, 1900		1,016.32

Key West, quarantine disinfecting machinery.

Balance, July 1, 1899		$900.40
Balance, July 1, 1900		900.40

Appropriations, quarantine stations, act March 3, 1899.

Reedy Island Quarantine Station		$2,000.00
Expenditures to June 30, 1900		1,999.43
Balance, July 1, 1900		.57
Cape Charles Quarantine Station		4,800.00
Expenditures to June 30, 1900		....
Balance, July 1, 1900		4,800.00
Brunswick, Ga., Quarantine Station		4,500.00
Expended and authorized to June 30, 1900		4,448.67
Balance, July 1, 1900		51.33
Gulf Quarantine Station		36,000.00
April, 1900, transferred to Supervising Architect	$16,000.00	
April and June, expenditure for plans, etc	27.80	
		16,027.80
Balance, July 1, 1900		19,972.20
Port Townsend, Wash		26,200.00
Expenditures, July 1, 1899, to June 30, 1900	$1,003.00	
Amount transferred to Supervising Architect	25,197.00	
		26,200.00

ADMINISTRATIVE DETAILS—CIRCULAR LETTERS, ETC.

CIRCULAR LETTER ENJOINING ECONOMY IN INCURRING EXPENSES PAYABLE FROM THE MARINE-HOSPITAL FUND.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., January 20, 1900.

To Medical Officers of the Marine-Hospital Service:

You are hereby informed that strict economy must be observed in the incurring of expenditures which are payable from the Marine-Hospital fund. You are directed to exercise care and discretion in preparing both regular and special requisitions. This relates both to the number and variety of articles desired, the quantities specified in the requisition, and to the avoidance of requesting instruments, drugs, or supplies of new or unusual variety.

The same care will be exercised in purchases under authority of Department contracts, and a close surveillance must be kept over the issue of subsistence and hospital stores.

Respectfully,

WALTER WYMAN,
Surgeon-General M. H. S.

CIRCULAR LETTER RELATIVE TO THE PREPARATION OF FREIGHT BILLS.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., January 30, 1900.

To Medical Officers and Acting Assistant Surgeons, United States Marine-Hospital Service:

You are directed in future to attach to all freight or express bills and bills for reimbursement for freight or express charges paid in accordance with paragraph 589 of the Regulations bills of lading or express receipts for shipments of medical, stationery, or other supplies. If such bills of lading or express receipts do not accompany the shipment, you will apply to the shipper for them. Care must be taken that the revenue stamp required by law is affixed to each bill of lading and express receipt.

Respectfully,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

DIVISION OF MARINE HOSPITALS AND RELIEF.

REPORT OF THE DIVISION OF MARINE HOSPITALS AND RELIEF.

By Preston H. Bailhache,
Surgeon, U. S. Marine-Hospital Service, in Charge.

The fiscal year ended June 30, 1900, closed the one hundred and second year of the establishment in the United States of marine hospitals for the care of sick and disabled seamen of the merchant marine, and the twenty-ninth year of the organization known as the Marine-Hospital Service, consisting of a corps of medical officers with a Supervising Surgeon-General at its head.

The work of the Service since its organization as a medical corps having become so great, a reorganization or readjustment of it became necessary, and the assignment of commissioned officers to manage the several divisions referred to in this report was imperative.

It would be interesting, were it proper to do so in an official report, to follow the work of the Service from year to year, until it is now the recognized health service of the United States.

PATIENTS TREATED.

There were 55,708 sick and disabled seamen cared for during the past fiscal year—of whom 12,744 were treated in hospital—aggregating 311,265 days' hospital relief; and there were 42,964 out patients treated at the several dispensaries of the Service 66,185 times. Of those treated in hospital there were 1,381 requiring surgical interference.

AID TO OTHER SERVICES.

Besides the above, aid has been furnished to the following:

Revenue-Cutter Service.—There were 977 applicants for employment in the Revenue-Cutter Service examined previous to enlistment, and 98 rejected.

Life-Saving Service.—The physical examination of keepers and crews of the Life-Saving Service numbered 1,467, of whom 75 were rejected for physical defects. Three hundred and eighty claims made by keepers and crews of the Life-Saving Service for pensions and other benefits provided for by the act of May 4, 1882, have been passed upon during the year.

Steam-Boat Inspection Service.—There were 2,437 pilots examined regarding their ability to distinguish colors, and 99 rejected on account of color blindness and other defects.

Coast and Geodetic Survey.—There were 3 examinations of seamen of the Coast and Geodetic Survey, and 2 rejected.

Light-House Service.—There were 6 seamen of this service examined and 1 rejected.

Immigration Service.—Aid was extended to the Immigration Service in the medical inspection of 448,572 immigrants. The hospital at New York for the care of immigrants still under inspection is conducted by officers of the Marine-Hospital Service, requiring, with the other branches of the medical inspection, 8 medical officers and 1 steward.

NEW STATIONS ESTABLISHED AND GRADE OF STATION RAISED.

In addition to the 22 marine hospitals and 102 relief stations referred to in the last annual report of the Service, there have been added 4 relief stations of the second class, and 2 changed from third to second class stations with a commissioned officer placed in command, making a total of 6 additional second-class stations, and 4 stations of the third class.

In regard to San Pedro, one of the stations changed from third to second class, it was found that the subports of Los Angeles, Rodondo, and Newport were in need of relief, and as Los Angeles was the most central point a commissioned officer of the Service was directed to make his headquarters at that place and visit the subports referred to, including San Pedro, as occasion required.

DEMAND FOR RELIEF IN HAWAIIAN PORTS.

The medical officer in command of the Service at Honolulu, where it is contemplated to erect a marine hospital and establish a station of the first class, has requested authority to arrange for relief at Hilo, Kihei, and Kahului, stating that there is much demand at these places for relief for American seamen.

GREAT LAKES.

Many applications are made from various ports, including those on the Great Lakes, for the establishment of relief stations, and great care has to be exercised in determining whether to open relief stations at such points, and for this reason it has been customary to detail a commissioned officer of the Service to visit such places and ascertain, by careful inquiry and an examination of the shipping, whether additional relief stations shall be established.

MARINE-HOSPITAL SANATORIUM AT FORT STANTON, N. MEX.

Referring to the Executive order of April 1, 1899, reserving and setting apart for the use of the Marine-Hospital Service the abandoned military reservation known as Fort Stanton, located in New Mexico, and containing 10,240 acres, more or less, with the buildings thereon, an officer of the Marine-Hospital Service was detailed to proceed to the Fort Stanton reservation and prepare it for the reception of patients of the Marine-Hospital Service suffering with pulmonary tuberculosis.

This officer proceeded to Fort Stanton, and work was at once commenced preparing the station for the reception of seamen suffering with that disease. There were some 63 buildings (3 adobe and wood, 4 stone and adobe, 20 frame, 25 adobe, and 11 rubblestone) upon the reservation, all of them in more or less dilapidated condition, much damage having been done to the buildings, the window and door frames, plumbing, bath tubs, and pipes having been torn out and carried away. Many of these buildings were small, and only the larger ones were prepared for occupancy. Arrangements for obtaining supplies were made, the necessary furniture for the quarters was obtained, and the dining rooms and kitchens equipped. Arrangements were made for procuring a water supply, and a wire fence is being placed around the entire reservation to prevent encroachment from cattle herds.

The first patient suffering with pulmonary tuberculosis arrived at the sanatorium November 18, 1899, and there are now, June 30, 1900, 47 patients under treatment. It is the intention to gradually add to this number as accommodations are increased for their reception, thus relieving the various hospitals and communities of this dangerous and contagious disease, and at the same time prolonging the lives of the sufferers.

The Executive order of April 1, 1899, set apart 10,240 acres, more or less, which comprised the original reservation known as Fort Stanton, a parallelogram of 2 miles in width by 8 miles in length. Owing to threatened occupancy of adjacent land by undesirable persons, who proposed to establish drinking saloons and disreputable houses thereon, a request was made in August, 1899, for an extension of the reservation for the use of the Marine-Hospital Service, and on November 1, 1899, another large tract, 1 mile on the north and 1¾ miles on the south, was set aside by Executive order and added, thus preventing the encroachment of undesirable persons, making a total reservation 38 square miles in area.

DESCRIPTION AND HISTORY.

In May, 1900, the following letter describing and giving a brief history of the sanatorium was addressed to the honorable the Secretary of the Treasury:

The honorable the SECRETARY OF THE TREASURY.

SIR: I desire herewith to give a brief description of the history and development of the sanatorium established for the benefit of the consumptives of the Marine-Hospital Service at Fort Stanton, N. Mex.

For a number of years the matter of the prevalence of tuberculosis of the lungs among seamen has been one which has given the officers of the Marine-Hospital Service and the Bureau much food for reflection, in that such a large percentage of the chronic cases in the hospitals are of this character and that no appreciable favorable results are obtained in their treatment. Orders have been issued for the isolation of tuberculous patients inasmuch as it is now positively known that this is a contagious disease; but this isolation is, as a matter of administration, very difficult, and there is no doubt that the keeping of tuberculosis patients in a hospital ward with patients who have been received for other diseases endangers the latter. At least four regularly commissioned officers of the Service, one hospital steward, and a number of attendants have contracted tuberculosis by reason of their intimate association with the patients of this character in the wards.

Therefore, in the interest of other patients in these hospitals, in the interest of the medical officers of the Service, the stewards and attendants who attend them, it is very desirable that those patients should be removed. Moreover, as indicated above, their improvement under present conditions is hopeless, yet it is known absolutely that many of them would completely recover, and others would materially improve so that they could live long lives of usefulness, if they were placed under proper climatic and hygienic conditions such as I will shortly mention.

It is proper to state here that tuberculosis, being a preventable contagious disease, is one that is engaging the attention of sanitarians throughout the world, and that efforts are being made everywhere to prevent the spread of this disease, which causes, it is estimated, one-seventh of the deaths from all causes. "In the United States 150,000 die annually, and one in every 60 persons is afflicted with some form of it" (Osler). It appears to be the duty of the Government to do all in its power to aid in this grand movement. Tuberculosis causes between 21 and 22 per cent of deaths from all diseases among the patients of the Marine-Hospital Service.

The elimination of this disease from the seafaring classes is especially incumbent upon the Treasury Department and the Marine-Hospital Service. These sailors come to our hospitals and remain a sufficient length of time to enable them to leave, if able to leave at all, and to again ship on board their vessels, where, in the narrow confines of the forecastle, they spread the disease among other sailors with whom they are so closely associated. Therefore, any effort made to eliminate this disease from among the sailors is a very essential factor in preventing the spread of the disease among all classes of our population.

It is well known that in the southwestern portion of our country there is a territory still belonging to the United States Government where the climatic conditions are such that patients afflicted with this disease, when removed there, will ultimately recover. It was therefore proposed to establish a marine hospital in this section, and to remove there, from time to time, as could be done most easily and economically, the marine-hospital patients afflicted with this disease. This subject had been under consideration and a matter of conversation and correspondence by myself for a number of years, and in 1878 I broached the subject of a ranch for the treatment of these sailors. A number of articles touching upon the subject are included in the annual reports of the Marine-Hospital Service, contributed by several officers, as follows: One by P. A. Surg. J. O. Cobb, on "Incurable tuberculosis cases in the North," in the report for 1893; another by P. A. Surg. W. D. Bratton, on "Arid-region sanitariums for the treatment of tuberculosis cases," in the annual report for 1895, and more recently a report from P. A. Surg. J. O. Cobb, going somewhat into details with regard to the proposed sanatorium, in the annual report for 1898. From this last report it will be seen that the cost of maintaining these tuberculosis patients in the Marine-Hospital Service—10 per cent of the number of patients in the hospitals to-day being of this character—is almost as great as would be the cost of transporting and maintaining them in the sanatorium in New Mexico, and with proper management and slight necessary legislation the cost of maintaining them will be much less than at present, and the sanatorium may in due course of time become partially self-supporting.

It is a well-known fact that the consumptive requires a great change in his environment if a marked improvement is to be expected. We had found that a more equable climate at the sea level was of no particular benefit, in fact, rather to the contrary, as shown by the Service statistics covering a period of twenty years.

In 1895 P. A. Surg. W. D. Bratton, having himself contracted the disease from his patients, on going to New Mexico to regain his health, was directed by myself to prepare a report on the beneficial effect of the New Mexico climate on consumptives, and make suggestions as to the location of a sanatorium.

In 1898 I detailed P. A. Surg. J. O. Cobb to investigate the question thoroughly, and proceed to Arizona and New Mexico to inspect unoccupied Government lands and abandoned military reservations. It was presumed that the army posts were the first to settle in the country, and that they had been especially selected for a water supply. The water supply, of course, was a serious question.

In examining the old reports from army medical officers stationed at these various posts, they have from a very early date called attention to this region as being very wonderful in the cure of the disease. When the disease was so prevalent at that time, it is hard to understand why these reports from the army officers did not attract more general notice.

The reports of these medical officers were very valuable in showing for a great number of years the rainfall, actual and relative humidity, temperature averages, together with the prevailing sickness in camp and vicinities.

The abandoned military reservation at Fort Stanton, N. Mex., was selected as the most suitable place, and it was immediately set aside by Executive order, dated April 1, 1899.

There are 25 stone and rubble buildings at this station, and these buildings are being put in repair for patients. Some of the buildings have been repaired, and already 51 patients have been admitted.

This station is 6,126 feet high, and there was a serious question raised as to whether it was not too high. This was answered by the statement that for all purposes the yearly average of temperature was to be considered, for if we selected a site at the level of Tucson or El Paso the patients would lose in summer all they had gained in winter; we therefore had to go to a greater altitude for cool summers. Fort Stanton is at the same altitude as Colorado Springs, Las Vegas, and lower than Santa Fe.

The problem of persuading patients to go that far away from water caused us the most anxiety, for Jack Tar does not like to be away from water. While this reluctance is undoubtedly keeping some away, nevertheless I can see that in a short time they will be anxious to go, especially when they learn that their friends are recovering or have gotten well.

It may be of interest to give a few details of our management of these cases. No special treatment is gone through as a routine. Dieting and out-of-door life and climate are relied upon to cure any ordinary incipient case. In the second stages, where there are cavities with mixed infection, many things are being tried, such as Klebs's antiphthisin, etc., which are well known. The dieting is stuffing by suggestion. Stuffing is not enforced, and the officer in command reports that he has not found it necessary to do more than persuade the patient to try it. Milk is given with always the same amount of cream, and it is administered by the Bulkley method.

Of course, the men are compelled to be out of doors all the day. They have many ways of amusing themselves in the open air. Some play baseball and handball and others walk in the canyons and on the mesas prospecting for minerals; others ride the ponies furnished for this purpose, while the bad cases lounge about in the sunshine in the reclining chairs or lie out of doors in a bed which has a canopy headpiece, which turned to the wind will shelter the patient.

It is too early to speak of permanent results, for the sanatorium has hardly been open since November, but there are some temporary improvements that I should like to mention. Out of a total of 51 patients admitted to this date 11 have stopped expectorating and coughing and have no other manifestations of the disease except that the original focus or foci can be found by auscultation; 6 with the deposits as low as the fourth rib only occasionally cough or expectorate or have fevers or subnormal temperatures; the other cases, except one, have neither gained nor lost witn the exception of the appetite, which has improved in all; 1 has steadily lost ground, notwithstanding he was a good case to start with; 5 have died. Necropsies were made on four of the cases that died, and in all the disease was so far advanced that there was little or no possible chance for improvement.

Respectfully,

Walter Wyman,
Surgeon-General Marine-Hospital Service.

RELIEF AT DUTCH HARBOR.

The discovery of gold in Alaska and the natural increase of shipping in that direction made it necessary to establish a relief station for the care and treatment of sick and disabled seamen, and early in the spring arrangements were made with the North American Commercial Company for renting suitable buildings for this purpose. A medical officer and steward of the Service were directed to proceed to Dutch Harbor, supplies having been ordered to meet them at that point, and a relief station of the second class was early established and kept open until the close of navigation, when it was temporarily discontinued until spring.

MARINE HOSPITAL FOR THE PORT OF NEW YORK.

The necessity for the Government possessing a hospital of its own at the port of New York is every year increasing, and it is hoped that the frequent recommendations to this effect may finally influence Congress to make the necessary appropriation.

MARINE HOSPITAL FOR HONOLULU.

By Executive order, dated January 5, 1900, 7 acres of land have been set aside in the suburbs of Honolulu to be used for the establishment of a United States marine hospital, but as yet no appropriation has been made for the erection of a hospital building on this site, and sailors of the merchant marine at that port are consequently being afforded relief at local hospitals under contract.

Following is a copy of the Executive order referred to:

RESERVATION SET APART FOR A MARINE HOSPITAL AT HONOLULU.

EXECUTIVE MANSION,
Washington, D. C., January 5, 1900.

By virtue of the authority vested in me by joint resolution of the Senate and House of Representatives of the United States, accepting and confirming the cession of the Hawaiian Islands to the United States, it is hereby ordered and directed that out of the Government reservation lying to the eastward of the Puowaina or Punch Bowl Hill, in the island of Oahu, Hawaiian Islands, 7 acres, more or less, as hereinafter described and located, shall be set apart for the use of the United States Treasury Department as a site for a United States marine hospital for the port of Honolulu.

This site shall consist of 7 acres situated north of Makiki cemetery and bounded on the north and east by the sinuosities of the Punch Powl road; on the south by a line projected eastward from the powder magazine to intersect the Punch Bowl road, this line being the southern boundary of the Government reservation at that point; and on the west by an arbitrary north and south line, drawn so as to leave 7 acres within this designated tract.

WILLIAM MCKINLEY.

CARE OF SEAMEN.

The provisions made for the care of seamen for the fiscal year ending June 30, 1900, at all ports where relief is furnished are set forth in Department circular dated June 5, 1899, entitled "Contracts for care of seamen, etc."

REPORT OF PURVEYING DEPOT.

LETTER OF TRANSMITTAL.

NEW YORK, *July 1, 1900.*

SIR: The following report of the operations of the purveying depot for the past fiscal year comprises all the work done since its establishment in June, 1899, when it was installed in its new quarters in this city. The figures and statements following, therefore, include the past fiscal year and the last week of the previous fiscal year.

CHAS. E. BANKS,
Surgeon and Medical Purveyor, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

INTRODUCTORY.

The amount of work performed since its establishment has not only exceeded all my expectations and exhausted the provisions originally made for it, but the character of the services rendered to the Marine-Hospital Service proper and to other branches of the public service to which it has been tributary has been greatly improved and augmented. The reasons detailed in my letter to you, dated August 3, 1898 (Annual Report, Marine-Hospital Service, 1898, pp. 74–75), recommending the removal of the purveying division of the Service to this city, and which received your favorable recommendation and subsequently the approval of the Secretary, resulted in the transfer of its work from the inadequate quarters and limited market of the capital city to this great business center. It is not my desire to appear in the light of approving my own suggestions, but after an experience of five years in this division of the Service I can say that its work has now been placed upon a satisfactory basis from a business standpoint, putting it in line with all other supply departments of the various Government services. Heretofore as a supply division it was operated without a stock of supplies, except a limited quantity of drugs and chemicals, and depending upon orders to contractors for goods, never seen nor inspected, to supply the wants of the Service. It is now a supply depot with a stock of stores on hand, somewhat in excess of the actual daily needs in order to be able to supply public exigencies of an immediate nature, thus insuring ready and efficient aid in the matter of commissary and other supplies for those emergencies which the Service is required to face at unexpected times. While no great epidemic has called this agency into operation during the past year, yet as an officer in charge of the Service supplies it has been my anxiety in previous years to properly maintain the commissariat, but under present conditions this anxiety has been greatly relieved by the knowledge that this depot could supply even on telegraph notice a sufficient quantity of all classes of material by fast transportation to any point in the United States or its island possessions. This fact is materially aided by the railroad and steamship facilities in this commercial center, which enable this depot to forward freight in all directions in the most expeditious manner.

STAFF.

At the establishment of this depot the working staff consisted of the medical purveyor, 2 hospital stewards and chemists, and 9 hospital attendants, all appointed under civil-service rules. The increase of work devolving on this depot by reason of the change in the character of its operations, particularly relating to purchase and issue of supplies for the island possessions, necessitated the gradual increase of the force from time to time during the fiscal year by 4 additional attendants, making a total of 13 hospital attendants for general work. This work consists of packing, issuing, and inspecting supplies, care of records and accounts covering same, necessary care of the building and apartments, heating apparatus, freight elevator, and night watchman.

Additional work has been charged to this office in consequence of the accounting of supplies and records of same and care of accounts, and the rendering of vouchers against the several branches of the Service to which this depot issues supplies. A considerable share of the time of members of the staff and attendants is utilized in the selection and purchase of supplies for island stations. These purchases are largely of a miscellaneous character, consisting of articles not kept in stock, requiring purchase in open market and the personal examination of goods at time of purchase.

FINANCIAL STATEMENT.

The following is a summary of expenses incurred by this depot since its establishment during the past year and including the latter part of June, 1899, when it was established. The gross amount of expenditures is necessarily in excess of that heretofore expended by the purveying division, for the following reasons:

First. Those pertaining to the establishment, equipment, and maintenance of the depot affording additional and improved facilities in the transaction of its business.

Second. To this depot is now charged all bills for supplies, equipment, etc. (daily subsistence excepted), which have heretofore been charged to individual stations, thus transferring to one point a large aggregate of expenditures previously divided between 100 relief stations and 13 quarantine stations.

Third. As purchasing agent for the new island possessions, large expenditures have been made and charged to this depot, adding to its aggregate outlay, for which, of course, reimbursements will be made through official channels. It is necessary to premise this in order to afford an explanation should comparison be made with the limited operations of the purveying division in its previous years of existence.

Fourth. Prior to the removal of the purveying division and establishment of the depot, all stations were instructed to make special requisitions in anticipation of the removal in order to reduce the amount of stock for transfer. As a result, the stores on hand in the purveying division were practically exhausted, and in order to provide for the semiannual and special requisitions after removal it was necessary to get in an estimated year's supply to meet all demands, which entailed an unusual expense at the outset of its existence. This condition will not recur.

The total amount of bills rendered of expenses incurred by this depot is $176,409.79, divided into classes as follows:

Salaries (and commutation)	$12,670.29	
Bacteriological apparatus, etc	7,305.33	
Bedding, clothing, and dry goods	29,557.47	
Medical books and journals	4,768.44	
Surgical instruments and appliances	13,618.13	
Hospital sundries	10,122.29	
Furniture and equipment	20,654.05	
Medical supplies and disinfectants	45,874.20	
Operating expenses of depot	9,136.97	
Equipment of depot	5,614.86	
Hospital stores	17,087.76	
Expenditures, July 1, 1899, to July 1, 1900	176,409.79	
Repayments	28,376.08	
		$148,033.71
Expended from July 1, 1899, to February 17, 1900, which heretofore would have been charged to stations	17,739.64	
Expended since February 17, 1900, to date (June 30, 1900)	11,513.91	
		29,253.55
Balance		118,780.16

It should be said in explanation of the above table that this division of expenditures is largely an arbitrary one, as it is somewhat a question of interpretation to which class certain articles of equipment shall be charged, but the classification heretofore adopted has been followed. It is estimated that the stock on hand is valued at $40,000 at least.

REIMBURSEMENTS.

The following is a summary of the purchases made for various branches of the Government service and for the operations conducted by the Marine-Hospital Service in Cuba, Porto Rico, Hawaii, and the Philippines, which aggregate represents the amount to be deducted from the gross expenditures of the depot. This amount is largely in excess of all my expectations on this subject, as stated in previous communications to you, and representing, as it does, over one-sixth of the amount of work done by the depot, explains what appeared to be on first examination a large increase in the outlay of this division of the service.

In the sum total of the reimbursements appears purveying depot charges for services rendered to the above-named branches of the Government service and island possessions. This sum was fixed at 10 per cent of the amount of the expenditure, and after careful consideration was found to be an approximate representation of the amount of time, labor, and material involved in purchasing, inspecting, packing, and issuing these supplies, for which the Marine-Hospital Service maintained and paid its employees.

Quarantine service	$11,468.85
Island of Cuba	7,942.44
Appropriation preventing the spread of epidemic diseases	5,916.75
Immigration Service	2,268.67
Island of Porto Rico	331.78
Revenue-Cutter Service	319.99
Philippine Islands	105.60
Hawaiian Islands	22.00
	28,376.08

INSPECTIONS.

It will be remembered that one of the principal arguments advanced for the establishment of the supply depot with sufficient room for the maintenance of the stock on hand of all supplies was to provide for the inspection of all articles purchased, which had heretofore been impossible owing to the lack of room in Washington. This feature, I need not say, is almost an essential factor in the purchase of supplies for Government use, in consequence of the inevitable tendency of successful contractors, under a competitive system, to recoup themselves for their low prices, especially on a rising market, by substituting inferior goods for the articles specified as standard. This condition was specially favorable to this tendency when supplies were ordered direct from contractors to be sent to stations, as was the case prior to the establishment of the depot. Now all articles purchased are shipped to this depot and inspected prior to issue, and this has had the effect of securing not only better deliveries, but also in identifying causes of certain unsatisfactory supplies heretofore purchased without such oversight. It is not intended to specify particular instances where this has been effectually stopped, as it is believed that occurrences of this character will be reduced to a minimum. Inferior deliveries are inseparable from Government contract purchases, but with the knowledge that inspection is a prerequisite, the quota of satisfactory deliveries will be largely increased. In round numbers, articles to an amount approximating $5,000 in value have been rejected as not satisfactory, and requirements originally made were subsequently secured as a result. In this connection, it is to be remarked that while it may not always be possible to obtain a materially decreased price for any given article by purchases of a central supply depot, yet this result is not only secured in a large majority of cases, but an improved quality is procured as well. There is often a little superficial difference in the appearance between first and second qualities of goods to an unpracticed eye, yet the value develops later on in the practical wear and tear of the parts entering into their composition.

RECORDS AND CORRESPONDENCE.

It became a necessary part of the duties devolving upon myself in charge of this depot under new conditions to provide for an adequate system of records of supplies received and issued, and to keep a proper number of accounts to show the operations of the depot, fiscal and otherwise, as well as to render returns of such property for which I am, under the regulations, personally responsible. In consequence of the diverse and ever-increasing variety of articles purchased and issued, it was determined in advance that the ordinary property record would be inadequate for such purpose, and a card-index system was employed to meet this contingency of frequent purchases and more frequent issues. This has been found to be entirely satisfactory, enabling me to ascertain at any particular time with a moment's search the amount of any particular articles on hand, when purchased, and to whom issued, and it forms a basis of the semiannual property return which I am required to render under the amendments to the Service regulations. A smaller index is kept of all communications received and sent during the past year. Five thousand four hundred and sixty letters have been written from this office during the past fiscal year.

PURVEYING DEPOT BUILDING.

As now equipped, by gradual employment of necessary adjuncts and in the way of interior fittings, this building fairly well answers the needs of this work, with the probable exception of storage capacity. The entire fifth floor is required for the executive work of the office, care and preservation of records, etc., and a part of the sixth floor has been fitted up for boards of officers to examine applicants for admission to the Service. With this exception the entire building of six stories and basement is occupied as storage room for various supplies which must of necessity be separated into classes for the convenience of reception and issue. This division, while in a measure it fails to utilize every existing foot of space, yet must of necessity be adopted in order to secure orderly arrangement and facilitate handling. At times this depot is sorely pressed for room, and I have reported to you the necessity for additional storage room, which I still believe to be necessary. It has been possible by a rapid issue of stores to relieve this condition, and by careful arrangement of orders to prevent entire congestion at times, and I have deferred to your suggestion regarding a final disposition of this matter of additional storage room in order to limit expenditures as far as possible. It is desirable to have additional floors, probably two will be sufficient, for the storage of bulky articles. And in view of the additional classes of goods which will be purchased and issued through this depot the ensuing fiscal year on account of appropriations for "Fuel, lights, and water," and "Furniture and repairs of furniture" and "Preservation of public buildings," which are now to be chargeable to the Marine-Hospital Service, my recommendations will have additional force. It is my purpose to defer this as long as possible and to await the experience of the next semiannual period for purchasing and issuing supplies to stations before asking your final judgment on this matter.

TRANSPORTATION.

The operations of this depot with respect to forwarding supplies have been materially aided by the facilities afforded by the depot quartermaster, U. S. Army, in this city. The shipments destined for stations which can be reached by bond-aided or land-grant railroads are shipped through the depot quartermaster on special invoices and forwarded by his Government bill of lading. As this work is naturally subordinate to the requirements of his own office, some unavoidable delay in removing goods from the depot has been experienced owing to the necessity of forwarding invoices to him after the shipment is prepared, in order that he may make preparations for its removal, but on the whole the service has been satisfactory and as prompt as could be expected under the circumstances. Through shipments to points not reached by bond-aided lines have been hauled from this depot under contract with the local truckmen.

It has been my endeavor, in view of the relations which exist between this Service and the merchant marine, to forward all such shipments as could be done by regular lines of steamers best serving the several ports reached by them. It has been found that this method of shipment is more expeditious than by rail routes. From June, 1899, to June 30, 1900, the amount of supplies issued by this depot aggregated 11,061 packages, weighing 599,290 pounds. This represents nearly three times the number of packages heretofore issued in one year and over twice the gross weight. The following table gives a detailed summary of the work done:

SUMMARY OF WORK DONE.

Requisitions filled:	
Quarantine stations (and steamers)	90
Epidemic stations (and steamers)	34
Relief stations	619
Island stations	48
Revenue-Cutter Service	1
Immigration Service	9
	801
Number of packages shipped	11,061
Total weight pounds	599,290

REPORTS OF FATAL CASES, WITH NECROPSIES.

REPORTS OF FATAL CASES, WITH NECROPSIES.

APPENDICITIS.

Perforation of intestine.

J. J. McC., age, 22; nativity, Maryland; was admitted to the United States Marine Hospital, port of San Francisco, Cal., March 2, and died March 13, 1900.

History.—Mother died of carcinoma. Patient had pneumonia eight years ago and has been subject to "an attack of bowel trouble" annually for a number of years. He contracted a severe cold two weeks previous to admission and this was attended by cough with expectoration; no pain in the chest. Six days ago pain in abdomen developed and became steady and continuous; bowels were irregular. Pain on admission was less severe, but increased by coughing. Other symptoms included anorexia, frequent vomiting, insomnia from pain, continued thirst. Cough was harsh and barking. Examination: Patient stooped, but fairly well developed and nourished; chest expansion poor; slight hyper-resonance over upper portions of lungs; dull areas in bases; increased respiratory murmur over both upper lobes, much decreased over lower lobes; an occasional crepitant and subcrepitant rale at upper border of lower lobes; vocal resonance decreased over same region and base of chest, anteriorily; heart sounds rapid, no murmur.

A week after admission dullness in lungs had resolved, with exception of an area in right base where respiratory murmur remained suppressed; no rales. Breath was offensive. Pain in abdomen which had improved was again troublesome. Transferred to surgical ward.

March 9.—Patient found lying on right side with head inclined forward and body bent laterally to right. Resting on his back caused pain in abdomen. Examination showed abdomen tense with a large dull area below umbilicus to the right of and involving the median line. Left iliac fossa was tympanitic. Examination of the blood showed a leucocytosis of 47,000 per cb. mm. Laparotomy was decided upon, patient giving his consent. Anæsthesia was employed and the operation conducted under aseptic technic. An incision 6 cm. long was made obliquely downward and inward toward the median line to midway between umbilicus and symphysis over most prominent part of dull area. The skin, fascia, aponeurosis, and peritoneum were successively divided, cautiously, the fibers of the oblique and rectus muscles being separated with blunt-pointed instruments. Extensive adhesions were found involving the intestines and region of abdomen entered. Separation of these, though carefully done, led to extensive oozing, requiring ligation of some points, tortion of others. Upon attempting to dislodge the appendix a large abscess ruptured, discharging through operation wound approximately 400 c. c. of pus, extremely offensive in odor. Precaution was taken against its entrance into the general peritoneul cavity by the packing in of sterile gauze around the edges of the divided peritoneum. After carefully mopping out the abscess cavity with sterile gauze pledgets, the former was irrigated with sterile water and then a drainage tube inserted to the bottom. The latter was sewed to and conducted through an elaborate dressing subsequently applied into a pus basin containing absorbent cotton, placed at patient's side. The wound was closed at its upper part by a line of suture for each separate structure, three being employed. Hypodermic stimulation was used freely during the anæsthesia, which was fairly well tolerated. After patient was laid in bed, warmth was applied to extremities. He rallied and in a few hours felt quite comfortable. The following day he complained of some pain in the abdomen and vomited once or twice. There was a free discharge of offensive, blood-colored fluid from the drainage tube. In forty-eight hours severe pains in abdomen developed, the latter became tympanitic, and pulse rose to 160 per minute, the temperature to 39.5° C. It had ranged from 38° to 39° C. for the seven days previous. Patient developed severe vomiting and emaciated considerably. Expression of great distress and anxiety depicted on countenance. Urine voided voluntarily. Twelve hours later nervous twitching developed, though mind remained clear; clammy perspiration appeared over body, pulse became very rapid and feeble; respiration 48 per minute, and death supervened in three days after operation. The medical treatment, prior to operation, consisted in the use of Stoke's expectorant for cough; magnesium sulphate in small doses at frequent intervals, for bowel trouble; ice bag to right iliac fossa, and anodynes for pain. Urinalysis showed sp. gr. 1024, acid reaction, yellowish-red color, heavy yellowish sediment, and a small quantity of albumen.

Necropsy (*five hours after death*).—Body that of a young adult white male, fairly developed, but considerably emaciated. Abdomen distended; a drainage tube protrudes from an opening at right side of abdomen, midway between umbilicus and iliac spine, in an oblique line. Post-mortem rigidity and lividity present. Upon opening abdomen a large amount of offensive gas escaped and walls then collapsed partially. Yellowish fecal matter was observed in right iliac fossa and vicinity, mixed with pus in an abscess cavity occupying same region. The upper portion of the caecum for 8 cm. was in a gangrenous state and presented near the valve a large thinned and dilated area, containing numerous perforations of varying size. From these fæcal matter oozed. This part of bowel occupied the outer border of abscess cavity referred to; the latter limited on all sides by firm and strong adhesions and extended to the bottom of abdomen and the pelvic peritoneum. There was no general peritonitis, but adhesions in foregoing region rendered removal of the intestines possible only after numerous bands were divided. The appendix presented a bleached, whitened appearance, and was softened as though from immersion in an alkali. The tip had ulcerated off, and the edge was dark and ragged. On raising the intestines out of the cavity, after separating their anatomical attachments, there was discovered that which appeared like two hollow white tubes, double the size of ureters and of about the same length, attached to the lower portion of the ileum and extending down to the pelvic peritoneum. Here it was firmly anchored by adhesions. The tubes were separated in situ by a distance of about 7.5 cm. Further observation of the specimen, which was perplexing by reason of the disorganized state of the viscera in the region, revealed it to be a part of the ileum proper from just above the valve, in which the serous and muscular coats together had disappeared, leaving the mucous lining of the bowel; for a distance of 21 cm. the lining remaining intact as a collapsed, empty tube. This remarkable condition was interrupted in the center by a section of bowel having the entire coats intact for a distance of 6 cm.

The other organs were not examined.

F. J. T.
J. M. G.

Microscopic report.—A section from the lower ileum shows the mucous membrane entirely destroyed and replaced by a reticulum of fibrin, in the meshes of which are heaps of lymphocytes and polymorphonuclear leucocytes. The specimen looks very much as though a diphtheretic inflammation had occurred and covered the surface of the bowel with pseudomembrane. The process does not seem to extend below the mucosa.

The submucosa and muscular layers are quite normal. The serosa is slightly thickened.

F. J. T.
J. M. G.

ENDOCARDITIS ULCERATIVE.

P. H.; age, 32; nativity, Mississippi; admitted to the United States Marine Hospital, St. Louis, Mo., January 8, 1900; died one hour after admission.

History.—The family and previous personal history is negative except for an attack of gonorrhea, from which he recovered only a month before his admission. On July 21, 1899, he was seized with rheumatic fever and was admitted to this hospital. He had inflammation involving the left wrist, elbow, and shoulder; also the right knee and ankle. The lungs and heart showed no abnormalities on admission. Four days later he went away and returned, to die, on the 8th of January, 1900.

Necropsy (*twenty-six hours after death*).—No post-mortem lividity; rigor mortis marked; fair muscular development; almost no subcutaneous fat. The skull, meninges, and brain showed nothing abnormal, the latter weighing 1,580 grams and measuring 20 by 13½ by 9 cm. Pericardium appeared distended and gave fluctuation; on incising the sac it was found filled with 225 c. c. of clear yellowish fluid; the endothelial layer was perfectly smooth and shining, except for a milk-spot 2 cm. in diameter on the anterior surface of the right ventricle. Heart was pale and large, weighing 485 grams and measuring 15 cm. in length and 15 cm. in width; right auricle distended by current-jelly and chicken-fat clots; tricuspid orifice admitted three fingers easily, the valves themselves showing nothing abnormal; right ventricle was dilated and filled with clots similar to those in its auricle; thickness of walls 0.8 cm.; left auricle dilated; left ventricle enlarged; walls measure 2.5 cm.; cavity filled with current-jelly clot; anterior leaflet of mitral valve showed a very large perforation, regular in outline, nearly 2 cm. in diameter, with its edges covered with a large number of short villous-like projections; there was no cicatricial tissue about the opening or in the remainder of the leaflet, consequently the process must have been at least subacute. Aortic valves slightly thickened and opaque. Pulmonary leaflets normal. Aorta showed a few yellowish patches about the sinus of valsalva. Nares, larynx, and trachea were normal. Left pleura showed no adhesion and was practically free from fluid. The surface of the left lung was pale, smooth, and slightly anthracotic; upper and lower lobes slightly adherent; on section, both lobes were dark-red, crepitant, and oozed an abundance of frothy serum; small pieces floated in water; weight, 1,080 grams. Right pleura adherent throughout except at lower border of lung; the lung itself tallied with its fellow; weight, 975 grams; measured 23 cm. in length and 18 cm. in width. On opening the abdomen the organs were found in normal relationship. Liver extended one-half inch below costal margin; duodenum bile-stained; the peritoneum was smooth, shining, and the peritoneal fluid very slight in amount; the omentum was long and contained almost no fat. The stomach contained a small amount of yellowish-green fluid; cardiac and pyloric orifice normal. The remainder of the alimentary tract showed nothing abnormal. Appendix small in caliber and freely mobile. The liver weighed 2,920 grams and measured 37 by 22 by 10 cm.; its surface was smooth and rounded, and on section presented a finely mottled nutmeg appearance. The gall bladder was normal, and contained no stones; the ducts were patulous throughout. Left kidney weighed 180 grams and measured 12 by 7 by 3½ cm.; small amount of pericardial fat; capsule stripped readily; on section kidney was pale; cortex 1 cm. in thickness. Right kidney weighed 185 grams and measured 11 by 8 by 3.5 cm., otherwise same as its fellow in opposite side. Ureters patulous. Bladder normal. Testicle normal. The spinal cord was not removed.

E. R. E.
W. G. S.

ABSCESS OF LUNG (GANGRENOUS)

G. O.; age, 67; nativity, Germany; height, 5 feet 10½ inches; weight, 150 pounds; admitted to United States marine hospital, Stapleton, Staten Island, N. Y., January 24, 1900, and died February 1, 1900.

Family history.—Negative.

Previous history.—Patient had always been quite healthy until last November, when he was treated in this hospital for acute bronchitis.

Present illness.—Chief complaints: Cough; pain in right side; dyspnœa; spitting blood of offensive odor. This condition has been present for a week. Patient states that he has never expectorated blood before.

Physical examination.—Inspection: Right side of thorax shows a prominent bulging from fourth to twelfth rib. Comparative immobility of right side. Posteriorly some bulging and diminished respiratory movement. Liver seems much enlarged, and there is a marked yellowness of skin and conjunctivæ. Palpation: Vocal fremitus of base of right lung area diminished. Percussion: Line of flatness begins at upper border of fourth rib on right side and extends downward over region of liver. Auscultation: Diminished respiratory murmur on right side; distant, blowing breathing; vocal resonance absent.

Treatment.—Hot applications locally; stimulants and expectorants internally; saline cathartics to move bowels.

January 25.—Pulse rapid and small. Temperature normal. Marked dypsnœa.

January 31.—Pulse 109. Temperature subnormal. Extremely weak. Examination of sputum shows pus corpuscles.

6 p. m.—Failing rapidly. Temperature subnormal. Pulse 88.

February 1—2.30 a. m., patient in a semicomatose condition and covered with a cold clammy perspiration. Pulse very weak and rapid. Died at 3.45 a. m.

Necropsy ten hours after death.—Male; white; age, 67; height, 5 feet 10½ inches; pupils equally dilated; eyes blue; hair gray; rigor mortis fairly well marked; suggilations marked in dependent portions of body; subcutaneous fat small in amount; incision from suprasternal notch to symphysis pubis. Anterior mediastinum: Fat small in amount; remains of thymus negative. Pericardium: Apparently normal, but cavity contains 200 c. c. straw-colored fluid. Heart: Weight, 280 grams; walls of left ventricle hypertrophied; mitral and aortic valves incompetent; aorta shows atheromatous changes and contains antemortem clot; venæ cavæ contains large amount fluid blood, inferior vena cava contains organized clot; lumen of pulmonary artery smaller than normal. Pleuræ: Right pleural cavity contains 1,500 c. c. of sanguinolent fluid. Lungs: Right lung bound down by adhesions posteriorly and to diaphragm, and upon breaking up the dense adhesions a large and several smaller gangrenous abscesses with thick and ragged walls were discovered in lower lobe; weight of right lung, 790 grams. Left lung: Adherent throughout; weight, 500 grams; no fluid in pleural cavity of left side. Liver: Rather dark in color externally;

one section shows some fatty changes; weight, 1,760 grams. Left kidney: Cortex very small in extent; capsule nonadherent; markings quite distinct; weight, 160 grams. Right kidney: Cortex small; fatty changes; markings distinct; capsule nonadherent; weight, 155 grams. Spleen: Apparently normal. Stomach and intestinal canal normal.

C. W. V.
G. W. S.

SPASMODIC ASTHMA AND EMPHYSEMA.

D. McK.; age, 34; nativity, Scotland; admitted to United States marine hospital, port of New York, July 21, 1899; died July 23, 1899.

Family history.—Negative.

Previous history.—Had chancroids ten years ago.

Present history.—Came into hospital in extremely feeble condition; says his illness began four months ago with a heavy cold, and although under treatment he continued at his work until his condition got so precarious that he was forced to lay up. Can not give a good account of himself owing to his extreme weakness. Breathing is intensely dyspnœic and of an asthmatic character. Can not lie flat on his back; breathes almost entirely through his mouth. Has cough with muco-purulent expectoration; vomits occasionally.

Physical examination.—Inspection: General condition, poor. Has depressions above and below clavicles; chest somewhat barrel shaped and does not expand much; muscles of chest and abdomen rigid. Palpation: Fremitus increased over both lungs. Percussion: Hyperresonant note over both lungs. Auscultation: Expiration prolonged and of low pitch, sibilant and sonorous râles over both lungs, and some loud mucous râles.

Pulse 108. Temperature 37.7.

Treatment.—Put to bed. Bed rest provided and given hypodermic injection of morphine sulphate 0.014.

July 22, 1899.—Only got temporary relief from hypodermic, which was repeated during the night. Given hypodermic of morphine again this morning. Bowels active. Vomited during the night. ℞ Tr. belladonna, 10; tr. hyoscyamus, 15; morph. sulph., 0.2; tr. lobelia, 30; aqua ad. q. s., 100: M, Sig.: 5 c. c. every three hours.

July 23, 1899.—Given slight relief, but dyspnœa is still intense.

P. m.—General condition rapidly became worse; pulse became weak, lips and finger tips blue. Stimulants ordered, and given hypodermic of morphine sulphate 0.01, but he became worse rapidly, and died at 6 p. m.

Necropsy (sixteen hours after death).—Body of male about 40 years of age. Fairly well nourished. Suggilations on body well marked. Eyes glazed. Pupils moderately dilated. No marks of external violence. Incision from suprasternal notch to symphysis pubes and organs of thorax and abdomen exposed. Brain weighs 1,300 grams; on section appears normal except for congestion of vessels. Skull cap: Normal; brain case fair size. Sinuses and cord vessels congested. Anterior mediastinum: Normal. Heart: Weight, 350 grams. Arrested in diastole. In mitral valve slight vegetation on edge of one of cusps. In ventricle considerable chicken fat; clot found. Pericardium: Smooth, glistening. Amount of fluid, normal. Left lung: Weight, 390 grams. Floats, crepitates. External surface markedly pigmented. Upper lobe somewhat collapsed. Lower lobe markedly inflated. Right lung: Weight, 800 grams. Floats, crepitates. External surfaces pigmented; lung congested and markedly œdematous.

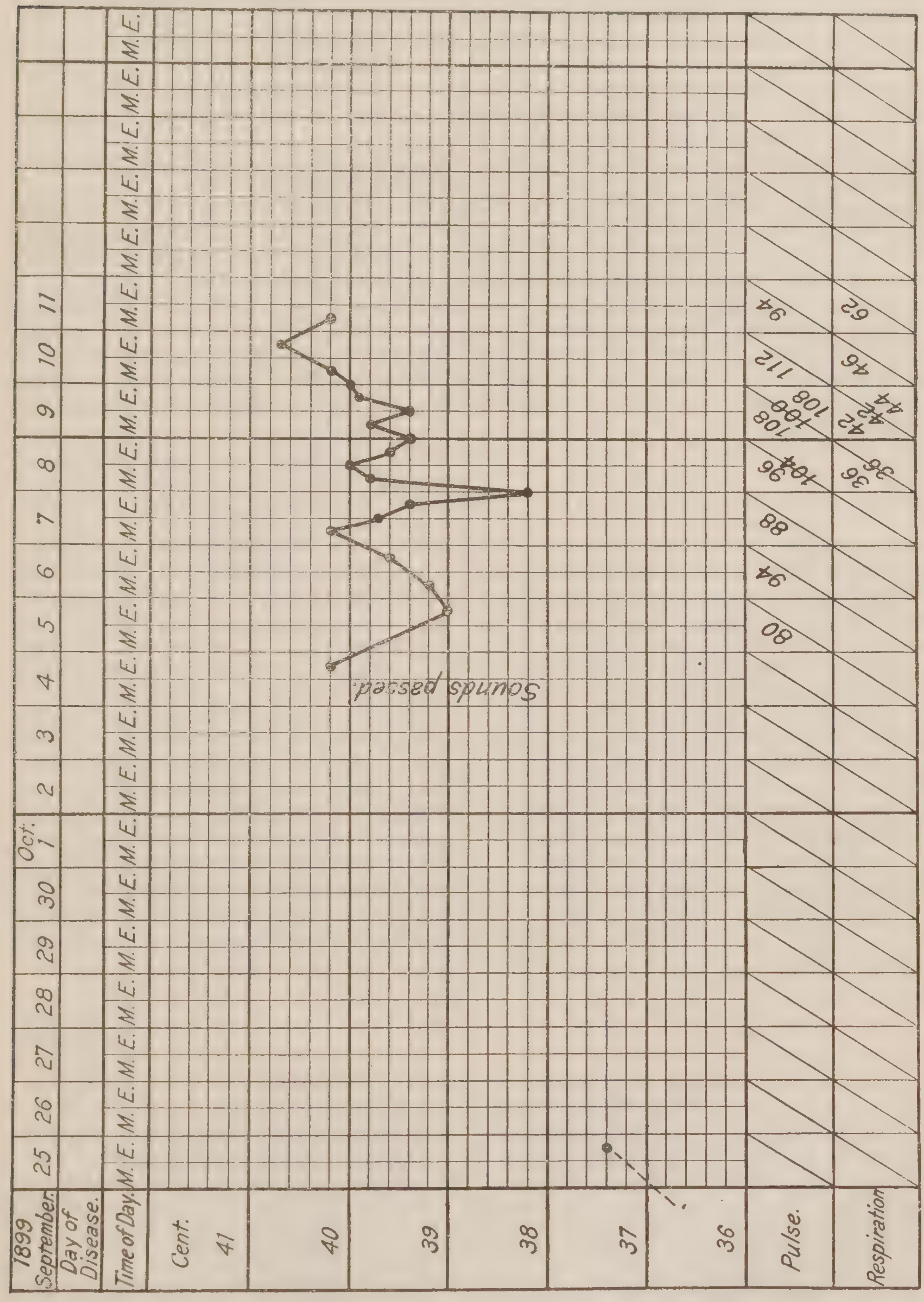
On section a frothy exudate escapes, especially from lower lobe and base of lung. Left pleura: Smooth, glistening; amount of secretion normal. Right pleura: Smooth, glistening, excepting its surface, which is thickened, rough, and adherent to diaphragm. Great vessels and nerve trunks: Negative. Diaphragm: Adherent to right pleuræ and to area about 1 cm. square to superior surface of right lobe of liver. Omentum: Normal. Spleen: Weight, 100 grams. Normal position. On section shows infarct about 1 mm. long and one-half mm. broad. Apex of infarct near inferior border. Left kidney: Weight, 155 grams. Capsule nonadherent. Markings, fair, considerable fat in cortex. Position, normal. Right kidney: Weight 150 grams. Capsule nonadherent, position normal. Markings, fair. Considerable fat in cortex, especially around Malpighian pyramids. Urinary bladder: Normal. Organs of generation: Normal. Rectum: Normal. Stomach: Normal. Duodenum: Normal. Gall ducts: Patent, normal. Liver: Weight, 1,570 grams; hard, resisting when cut; nutmeg in color and appearance; inferior surface adherent to diaphragm. Pancreas, negative. Mesentery, negative. Small intestines, negative. Large intestines, negative. Great vessels, negative.

J. M. K.
G. W. S.

STRICTURE URETHRA, ORGANIC; EX GONORRHEA; PYÆMIA; ATHEROMA ARTERIES.

A. C.; aged 55 years; nativity, England; was admitted to the United States marine hospital, port of San Francisco, Cal., September 25, and died October 11, 1899.

History.—Family history negative. Previous history of rheumatism, syphilis, bronchitis, and numerous attacks of gonorrhea.



[U. S. Marine Hospital, port of San Francisco, Cal.; name, A. C.; age, 55 years; disease, stricture of urethra, organic; ex gonorrhea; pyæmia.]

For at least eight years past had been troubled with urethral stricture. On admission complained of cutting pain in back and difficult urination. Physical examination of thorax and abdomen at this time, negative. Attempts to pass instruments, even filiforms, into bladder, unsuccessful. No evidence of retention of urine.

September 28.—Further attempts to pass instruments unsuccessful.

October 4.—Filiform passed into bladder. Instrumentation performed with aseptic precautions.

October 5.—Patient complained of feeling of weakness and malaise; had moderate chills followed by fever and sweating.

October 6.—Fever continued with occasional feelings of chilliness and profuse sweats. Marked hyperesthesia. Patient complained of severe pains in back of neck and other portions of body.

October 7.—Left wrist swollen and very painful on motion; redness, tenderness, and slight swelling over right olecranon. In third interspace, immediately to right of sternum, a small well-localized spot of marked tenderness on pressure.

October 10.—Redness, swelling, and pain noted at metacarpo-phalangeal joint of right middle finger. Profuse sweats continued. Pulse and respiration more hurried. Tongue dry, glazed, and coated with light-brown fur. Marked pallor.

October 11.—Respiration more rapid—60 per minute. Hearing apparently blunted. Mind clear up to time of death, which occurred at 4.15 p. m.

Treatment.—Stimulants freely exhibited. Urinary antiseptics. Quinine pushed to full physiological limit. Full, nourishing, easily digestible diet.

Necropsy (nineteen hours after death).—The body is that of a fairly well-developed, well-nourished white adult male. Rigor mortis well marked. Abdominal fat excessive. Large deposit of fat in mesentery and omentum. On laying bare the sternum a small quantity of pus exuded, which had its origin in the third right chondro-sterna articulation. On left side the visceral and parietal pleuræ were universally adherent by firm, apparently old adhesions. In right pleural cavity a similar condition existed, adhesions being, however, firmer. Parietal pericardium normal, save for a few pin-head sized petechiæ in relation with right auricle. Considerable deposit of fat beneath epicardium. Heart weighed 350 grams. Heart chambers contained dark fluid blood mixed with a few clots; left ventricle, however, empty. Pulmonary and tricuspid valves normal. Mitral and tricuspid valves slightly thickened, but apparently competent. The ascending aorta was considerably dilated and contained numerous atheromatous plates, many of which had undergone calcareous infiltration. Atheromatous changes especially noticeable below origin of innominate. Left lung weighed 579 grams and showed marked congestion. Excised portion floated in water. Right lung weighed 589 grams and resembled its fellow. Congestion especially marked in upper lobe. Lungs showed no evidence of metastatic abscesses nor tubercle. Spleen weighed 250 grams; soft and swollen. Spleenic pulp dark and diffluent. Left kidney weighed 149 grams. Perinephritic fat excessive. Capsule slightly adherent. Kidney substance of firm consistence. Pelvic fat excessive. Right kidney weighed 182 grams. Anteriorly a small cortical cyst about size of a pea; otherwise right kidney resembles its fellow. Liver weighed 1,825 grams. Capsule smooth. Liver substance of normal consistence, pale, bile-stained, and anemic. Urinary apparatus removed en masse. Urethra presented fairly normal appearance up to a position slightly anterior to bulbo-membranous junction, where was found an annular mass of cicatricial tissue about 1.5 cm. in length, almost occluding the passage. Urethra showed no evidence of traumatism. The prostate gland was enlarged and of firm consistence. The bladder wall was hypertrophied; its mucous membrane apparently normal. Brain weighed 1,220 grams; its surface and substance apparently normal; the lateral ventricles each contained 1 c. c. of turbid fluid. Incisions into swellings over right olecranon and metocarpo-phalangeal joint of right middle finger disclosed in each case an accumulation of pus.

J. M. G.
D. M.
W. M. W.

STRANGULATED FEMORAL HERNIA.

J. D., white; age, 45; nativity, Kentucky; admitted to the United States Marine Hospital at New Orleans, La., November 28, 1899; died November 29, 1899.

History.—Had several attacks of malarial fever during past summer. Has had several previous attacks of pain in abdomen and vomiting, last about one month ago. On November 25, when stepping from elevation of about 15 inches, was taken with sudden pain in abdomen, followed by vomiting and diarrhea; also noticed small tumor which appeared suddenly in right groin. On admission to hospital complained of pains, paroxysmal in character, around umbilicus; abdomen slightly tympanitic; diarrhea had ceased; vomiting nearly so; at no time was vomiting fecal; had no appetite. The external abdominal ring could easily be felt with finger, and was free from any hernia. Tumor was external to ring, very firm, and to all appearances was glandular, though he denied any veneral disease at any time. Patient was put to bed and turpentine stupe applied, which relieved pain.

November 29.—Passed a good night, sleeping well; had no pain until about 7 a. m.; bowels had not moved; vomited small amount of bile; no fecal smell to it; patient was chloroformed and tumor opened; a knuckle of small intestines was found protruding from very small opening under Poupart's ligament. Diagnosis of strangulated femoral hernia was confirmed. The condition was evidently of long standing before strangulation, as very firm adhesions had formed in the surrounding tissues. Gut was deeply congested, but apparently not gangrenous; it was returned to abdomen and opening closed. Received hypodermic injections of whisky and strychnine after operation, during afternoon, and shortly before death; also morphine sulphate, gr. $\frac{1}{8}$, at 2 p. m. After operation, pulse, 80; temperature, 36$\frac{4}{5}$. During afternoon gradually became worse, dying of acute peritonitis; temperature came to normal; pulse, 150 before death.

Necropsy (two hours after death).—External appearances: Fairly well nourished; post-mortem lividity slightly marked; rigor mortis very slight; abdomen somewhat swollen; cranial cavity not opened. Thoracic cavity: Heart, lungs, pericardium pleuræ, great vessels and nerves, trachea, and bronchi were normal. Abdominal cavity: When opened considerable gas escaped; cavity full of thin, yellowish, pustular fluid, about 500 c. c. in quantity, with distinct fecal odor. Peritoneum and mesentery intensely inflamed. Coils of intestines bound together, and to other organs by recent, easily broken, flaky adhesions, very deeply congested and bright red in color, distended with gas. At seat of hernia was a gangrenous spot measuring 6 cm. in length and 3 cm. in width. Intestines at mesenteric attachment were not gangrenous. At one end of this spot was a perforation measuring 2 cm. in diameter. Stomach, liver, spleen, pancreas, kidneys, suprarenal capsules, ureters, bladder, deeply congested and covered by recent adhesions, otherwise normal. Great vessels, solar plexus, and generative organs normal.

W. W. K.
R. H. E.

ANEURISM, INNOMINATE—ARTERY, SACCULAR.

E. J., aged 40 years; nativity, Finland; was admitted to the United States marine hospital, port of San Francisco, Cal., on September 2, and died October 5, 1899.

History.—Had been ill with undefined symptoms about two months, during which time he was at sea. On admission he was very weak, pale, and bore an anxious expression, with cough and a veay sore throat. On examination of the chest a few moist rales were heard over lungs, otherwise the thorax was normal. Above the right clavicle was a tumor extending up the right side of the neck, which gave a distinct sense of pulsation, and a bruit on auscultation. The pulsation of the right radial, brachial, facial, and temporal arteries was less in volume than those of the left side. During the first ten days the patient was in the hospital his temperature was persistently subnormal, but thereafter rose to and remained normal. The tumor gradually grew larger and developed expansile pulsation. At time of death it extended from beneath the clavicle to a level with the upper border of the thyroid cartilage, and from the median line in front to the border of the trapezius muscle. He complained of great pain in the region of the tumor, in the throat, right shoulder, and head. Owing to pressure he suffered considerable dyspnœa, and for several days had great difficulty in swallowing even liquid.

Treatment.—Patient was ordered to stay in bed; was placed on milk diet, and given iodide of potash. Bromide of potash was given to relieve restlessness, and a spray of Dobell's solution and menthol for the throat; morphine hypodermically for pain. Patient grew progressively weaker until October 5, 1899, when death occurred at 10.50 p. m.

(During temporary delirium, near the last, this patient tore up and scattered his clinical report and temperature sheets. This report is therefore incomplete. J. M. G.)

Necropsy (fifteen hours after death).—The body is that of a well-developed, somewhat emaciated, adult white male of medium size. Rigor mortis is moderately well marked. The right pupil is slightly larger than the left. The peritoneum is normal and its cavity contains 20 c. c. of clear fluid. The omentum is fairly well developed. The intestinal tract is normal. The liver weighs 1,830 grams. Its capsule is closely adherent and its cut surface is pale, but otherwise normal. Several small gall stones are in the gall bladder and one is in the common duct. The spleen weighs 170 grams, is congested, and its pulp very friable. Left kidney weighs 170 grams, right kidney 165 grams; both slightly congested, but otherwise normal. The pancreas is normal and weighs 70 grams. The vermiform appendix appears normal, but contains several enteroliths, each about the size of a grain of wheat. The bladder and prostate are normal. The mesenteric glands are uniformly enlarged. The pericardium is normal and its cavity contains 5 c. c. of clear, straw-colored fluid. The heart is somewhat contracted and its exterior surface is normal. The right auricle contains a mixed white and red clot. The right ventricle contains a mixed clot and 10 c. c. of fluid blood. The left auricle contains a mixed clot, only partly filling its cavity. Heart valves normal; weight, 340 grams. The arch of the aorta is dilated, somewhat atheromatous, and on its posterior surface in the transverse portion is a saccular aneurism, 1.5 cm. in diameter, filled with organized clot. The innominate artery is replaced by an aneurism 12 cm. in length by 4 cm. in diameter, extending into the neck from the arch of the aorta. This aneurism is almost completely filled by an organized clot of red and white alternate layers, within which is a white fibrinous tissue 6 cm. long by 1 cm. in diameter. The aneurism is firmly adherent to the clavicle, trachea, larynx, œsophagus, and deep structures of the neck, and presses upon the great blood vessels of the neck and brachial plexus. The right carotid and subclavian arteries are given off by common opening at the base of the aneurism, but are not dilated. The left carotid artery is slightly dilated. The right pleura is normal. The visceral and parietal layers of the left pleura are united by numerous old adhesions. The left lung weighs 670 grams, is congested and slightly œdematous, but otherwise normal. The right lung weighs 510 grams, is slightly congested, œdematous, and the anterior edge of the lower lobe is emphysematous. The brain weighs 1,490 grams. There is a slight effusion under the pia mater and congestion of the pial veins. The great longitudinal fissure contains a chicken-fat clot 5 cm. in length and 0.5 in diameter; otherwise the brain is normal.

H. A. S.
J. M. G.

F. J. K.; age, 38 years; nativity, Kentucky; admitted to Mercy Hospital, Pittsburg, Pa., July 11, 1900; died October 17, 1900.

History.—Patient had syphilis twenty years ago, for which he was treated at two periods of three months each; gave a history of the excessive use of alcohol all his life; in 1898, while in the South, he had malarial fever.

Present condition.—About three years ago patient began to have pain in the region of the fifth rib, left, posteriorly. This was noticed when lying down only, the pain disappearing when he sat or stood up. Pain was "dull and boring" in character, radiating toward the angle of the left scapula. The pain gradually increased, involving the whole of the anterior and posterior aspects of the chest, being most severe and constant in the region of the left scapula. Three months ago patient noticed a pulsation—a "beating"—in the region of the upper half of the left scapula near the vertebral border. His attention was called to it by the heaving forward of his chest when he lay upon his back.

Physical examination.—Man of medium height, somewhat emaciated. Voice husky. Looks ten years older than his real age (38). Arteries very atheromatous. Apex beat of heart at sixth interspace, just within nipple line. Heart sounds, loud. Slight accentuation of the pulmonary second sound. No murmurs. Some pulsation in both supra-clavicular fossæ; more marked on the left side. Posteriorly, near the vertebral border of the left scapula, there is a prominent, oval, pulsating tumor, about 4 inches in diameter. It bulges the vertebral border and the whole body of the left scapula backward. The pulsation is expansile and synchronous with the beat of the heart. A systolic bruit can be distinctly heard over the tumor. Examination otherwise negative. Urine contains no albumin or sugar, but a few pus cells are found microscopically. No fever at any time. Patient was confined to bed most of the time, and a bandage applied around his chest and over the tumor. Potassium iodide was given freely and morphia pro re natura. Veratrum veride was also used. He gradually lost flesh and strength, his voice becoming quite "brassy" in quality and feeble. The tumor did not get any larger, nor could any other change in it be detected. He died suddenly at 7 o'clock the morning of October 17, 1900.

Necropsy (*seven hours after death*).—External appearances: Man apparently fifty years old. Height, 5 feet 5 inches. No sign of external injury. No foreign bodies in mouth, nostrils, or ears. Post-mortem staining confined almost entirely to the region of the left scapula and surrounding area. Rigor mortis well advanced. Arteries very atheromatous. Clubbing of fingers slight. Chest measurements: From midsternal line to vertebral column, right side, 14.5 inches; from midsternal line to vertebral column, left side, 18 inches; over scapula, from same to same, level third rib, right side, 14 inches; over scapula, from same to same, level third rib, left side, 17 inches. Internal examination—thorax: After the removal of the sternum the lungs come into view, the right distended, the left almost totally collapsed. A large glistening tumor the size of the two fists, and having somewhat the shape of the heart, apex down, is seen occupying the left side and lower part of the thoracic cavity, displacing the heart to the right. The left border of the heart corresponds to the left edge of the sternum, the right border to the right mid-clavicular line. An immense effusion of blood, almost entirely clotted, displaces the diaphragm down and the heart and lungs upward. This effusion weighs 1,800 grams. There is about 300 c. c. of dark fluid blood which is included in this weight. The left pleura is firmly adherent except in front. There is no effusion into the right side of the thoracic cavity. An inch above the junction of the arch and the thoracic aorta is a round opening three-fourths of an inch in diameter, with smooth edges, admitting the tip of the index finger. This opens into a large saccular aneurism which becomes constricted about its middle by a dense adherent band of pleura. The outer part, having somewhat the shape of the heart, is more readily seen than the inner part, which is almost as large. The aneurism has ruptured at the apex of the outer part and also at the point of constriction, slightly. The first rupture is round, admitting the end of the thumb, and has fimbriated edges. The second is a vertical slit 2 inches long. The first sac of the aneurism is distinctly spindleshaped (fusiform). It lies deep, being covered by the heart and great vessels. Its position is longitudinal, being firmly adherent to the bodies of the dorsal vertebræ from the first to the sixth and to the heads, necks, and posterior parts of the bodies of the first, second, and third ribs of the left side. This sac is 5 inches long, 4 inches wide, and 2 inches deep. The anterior and lateral walls are membranous, the posterior wall being formed by the eroded bodies of the dorsal vertebræ from the first to the sixth, and by the eroded ribs. The bodies of the third, fourth, and fifth dorsal vertebræ are deeply eroded, the fourth almost to the spinal cord. The first rib is slightly eroded; the second is almost entirely eroded, only a few specules of it being left; the third rib is three-fourths eroded, only the anterior extremity being left. These ribs are all completely disarticulated from the vertebræ. The second sac of the aneurism is 8 inches long, 5 inches wide, and 5 inches deep. It is encapsulated by the parietal pleura in front and laterally, and has no posterior wall except the eroded ribs and the integument, the tumor extending to the deep fascia. There is no erosion of the scapula. There is a slit-like aperture between the two sacs, produced by the thick band of pleura mentioned before. It is evident that the aneurysm has dissected behind this band of pleura and behind the parietal pleura beyond, producing the second sac, the rupture of which produced death. Both sacs have the characteristic lamellated structure of all aneurysms anteriorly. They contain organized clots and weigh 2,100 grams, with clots included. The arch of the aorta is very antheromatous and contains cartilaginous plates. The left inferior thyroid artery is anomalous in its origin, arising from the arch of the aorta between the left common carotid and the left subclavian. The heart is normal as to size and weight. The aortic valve admits two fingers and by the hydrostatic test seems insufficient. The mitral valve admits three fingers, but the leaflets coapt fairly well. Both valves are very atheromatous. The left ventricle is dilated and full of clotted blood. Coronary vessels not markedly atheromatous. The right lung is to all appearances normal except for a slight anthracosis. It is crepitant throughout, and weighs 610 grams. The left lung is collapsed from pressure. It weighs but 270 grams. The liver weighs 1,600 grams, and is apparently normal. The spleen is congested, and weighs 320 grams. In consistence it is quite soft—not that friable quality usually felt. There is not the normal resistance in cutting, a quantity of blood exuding from the cut surfaces. The splenic pulp is scanty and of a dark, brownish red color. The right kidney is small and cirrhotic. It feels hard, and is very firm on section. There is a marked pyelitis, 3 c. c. of pus being found in the pelvis. The right kidney weighs 120 grams; the left 165 grams. Left kidney is apparently normal. The bladder is empty.

R. C. C.

RUPTURE OF LEFT RENAL ARTERY, RUPTURE OF DIAPHRAGM, FRACTURE OF TWELFTH RIB (RIGHT).

L. B.; age 28 years; nativity, England; admitted to United States Marine Hospital, Portland, Me., March 27, 1900; died on same day.

History.—Patient was struck across chest and abdomen by the beam of a derrick which pinned him against a hatch. He was held fast about five minutes. On arrival at hospital he was conscious, but in great distress, complaining of faintness, nausea, and pain in epigastrium with every breath. Extremities cold, color livid, respiration gasping, 36 to the minute, pulse wiry, 140. Faint line of contusion across upper margin of abdomen. Crepitus from fractured rib on the right was felt as he was moved. As he lay on his back there was a soft compressible swelling on right of abdomen from ribs to pelvis, percussion flat, auscultation negative. Percussion was strikingly tympanitic across upper third of abdomen, extending farther to the left than right, and up the length of sternum in diminishing degree, faintly tympanitic over left chest, but normal over right. Heart sounds audible over whole chest and upper abdomen. Respiratory murmur normal, but feeble, over right chest, tubular over the left. The respiration became constantly more labored, pulse weaker. In a short time he became comatose. Death took place in four hours after accident, two hours after reaching hospital. Operation was deemed inadvisable.

Necropsy (*fifteen hours after death*).—Body of adult white male, well nourished. Muscles rigid. Posterior surface livid. Swelling on right between lowest rib and pelvis, which has a black area 2 inches in diameter in the center. A little fluid blood in abdominal cavity toward right side. Omentum normal. Hemorrhage into subperitoneal tissue of abdominal wall in epigastrium and over, and below the margin of liver, more marked in ascending colon near transverse, and a little in anterior wall of stomach. On removing sternum, blood is found in both pleural cavities, 850 c. c. on right, 880 c. c. on left. A rupture of left half of diaphragm from posterior wall of body is found, through which the left kidney, a ragged mass, protrudes into left pleural cavity. There is also a slight extension of this rent to the right of spinal column, making connection into the right pleural cavity. There is hemorrhage into connective tissue around both kidneys, more extensive on the right, into the tissue of the lower half of left kidney, into the posterior wall of stomach, and the mesentery in numerous places. The ascending colon is black for space of 8 cm. The posterior surface of stomach and duodenum are very deeply discolored. A rent is found in peritoneum on right side about 5 cm. long from eleventh rib downward leading into a cavity containing clots of blood, which is beneath the discolored area of integument mentioned above and was the cause of protrusion seen during life. The twelfth rib on the right was fractured about 5 cm. from its free end. The source of free hemorrhage was found in a tear of left renal artery just at entrance into kidney and doubtless caused by pressure of kidney through the rupture in diaphragm. The lungs were collapsed by pressure of blood, otherwise normal. Spleen, small, negative. Pancreas normal. Liver somewhat fatty. Kidneys apparently normal except hemorrhage mentioned in lower half of left. Aorta was atheromatous through whole length and same condition traced into iliacs. Adhesion of pericardial sac to viscus over most of anterior surface, remainder of sac free, contained 20 c. c. of clear serum. Heart much hypertrophied, valves normal.

S. D. B.

CALCULI, GALL STONES.

C. J., age 54; nativity, Norway; was admitted to the United States Marine Hospital at Chicago, Ill., December 6, 1899, at 8.40 p. m., and died three hours after admission.

History.—The patient had suffered from attacks of biliary colic for ten years. Three days previous to his admission, while on board his vessel, he was seized with severe pain in the abdomen similar in character to that of his previous attacks. The pain lasted a few hours and then subsided. The pain returned with increased violence the following day and continued without intermission. He was sent ashore at South Chicago and driven to the hospital in the police ambulance, a distance of 14 miles. The night was rather cold. The patient when admitted was in a state of collapse; temperature subnormal; pulse hardly perceptible at the wrist; skin covered with a cold, clammy sweat; respiration labored. He was suffering intensely with the pain in his abdomen which he referred to the hypogastric region. The abdomen was distended and tympanitic; tender upon presure over the gall bladder; abdominal muscles contracted strongly. He had been constipated for four days, and had eaten little food. About fifteen minutes before death he vomited about 1,000 c. c. of a yellowish fluid.

Necropsy (*at 2 p. m., December 7, thirteen and one-fourth hours after death*).—Body that of a white man, apparently about 54 years of age, well nourished, muscles well developed. Rigor mortis was marked. Post-mortem lividity was present in the dependent portions of the body. Conjunctivæ tinged with yellow. There was a general yellowish tinge in the skin, especially marked about the shoulders. The heart weighed after opening 360 grams. The valves were competent and the heart muscle appeared to be normal. The lungs were negative. There were some old pleural adhesions present on both sides posteriorly. The right lung weighed 570 grams; the left, 520 grams. The kidneys weighed 170 grams each. The capsules peeled off easily. Both organs appeared to be normal. The liver weighed 1,710 grams. No gross changes were noted. The gall bladder was very small. Its capacity appeared to be about 10 c. c. The walls were thickened. A calculus, weighing 0.25 gram, was lodged just at the termination of the duct in the duodenum, the diameter of the duct at that point being insufficient to permit its further passage. Two smaller stones were found in the gall bladder, which contained about 5 c. c. of bile. The spleen, pancreas, stomach, intestines, and bladder were examined in situ.

NOTE.—The brain was not removed.

M. K. G.
H. W. S.

EFFECTS OF HEAT.

J. Z.; male; white; age, 38; admitted to the United States Marine Hospital at Detroit June 20, 1900; died June 21, 1900.

History.—Patient had been a fireman on steamer *North Land.* While at work suddenly collapsed, became faint and nauseated, extremely prostrated. An hour after was removed to the hospital. When first seen patient was in convulsions, which lasted a few minutes, and were repeated at intervals for two hours. Pulse was 120; respiration shallow and labored; pupils widely dilated; temperature in axilla 40° C. Patient was delirious between paroxysms; bowels moving involuntarily and almost constantly. Morphia sulph., 0.02 grams was administered hypodermatically, after which convulsions ceased and patient sank into coma, from which reflexes could be elicited with difficulty. Pulse became weaker and more rapid, and temperature went to $41\frac{4}{5}$° C. in spite of stimulants and iced baths, and at 6 a. m., June 21, patient died.

Necropsy (*ten hours after death*).—Rigor mortis marked; post-mortem lividity marked; numerous large scars on chest, arms, and legs; both pupils widely dilated. Calvarium removed in usual manner. Dura very adherent, dark, and congested; sinuses distended with black fluid blood, which coagulated very slowly; veins of dura deeply injected. Brain substance congested, weight 1,470 grams. Thorax opened. Pluera normal; right lung black, intensely congested, weight 900 grams; left lung same condition, weight 720 grams; both lungs showed slight anthracosis. Pericardium opened, normal; right heart and venous vessels filled with black blood, very fluid, coagulating but slightly; heart muscles and valves normal; weight, 350 grams. Abdomen—liver: anterior border of right lobe black with numerous cavities, dilatations of bile ducts containing friable granular deposits found to consist of bile salts; remainder of liver of normal appearance; gall bladder contained handful of gallstones of variable sizes; weight of liver 1,470 grams. Stomach distended with gas and black fecal matter; mucosa congested. Intestines pale, contained large quantity watery feces; adhesions of omentum and peritoneum in right iliac region. Spleen of normal appearance, weight 220 grams. Right kidney normal in appearance, weight 180 grams; left kidney normal, weight 220 grams; ureters normal; bladder empty.

B. D. P.
J. G.

ANTHRAX.

The case is one of interest on account of its rarity in this part of the world, and also on account of the difficulty in diagnosing it. The man was a Dane, who spoke no English, hence there was great difficulty in obtaining a thorough clinical history. The diagnosis was first made on post-mortem examination; indeed, not even then, for it was only with the aid of the microscope that it could be clearly demonstrated that anthrax was the cause of death.

As anthrax may appear in different forms, I will begin with a few explanatory remarks, which I trust that those who are thoroughly acquainted with the disease will excuse. It is, as we all know, more a disease of cattle than of man, and when man is infected it seems always to have been contracted from cattle or from their products (e. g., hides). These last are long dangerous, as the bacillus anthracis is exceedingly hard to destroy, and may live for years and retain its virulence. The disease may be divided into two general subdivisions, which differ on account of the seat of the primary infection:

(1) When the disease enters through the skin and sets up a local inflammation—the malignant pustule.

(2) Where no pustule is formed and where the bacillus is probably taken in through the alimentary or respiratory tract. The first form usually occurs in man, the latter in beast, though man may have anthrax without a skin lesion, as this case shows. It is also possible for the germs to enter the circulation through a wound and cause death without a local skin lesion, for death in this disease is caused by a general septicæmia, where the bacilli are found in the blood and the large organs. At times intestinal lesions, resembling the malignant pustule of the skin, are found, but this is not necessarily the case; indeed, Osler and Billings describe it as the exception.

Now for the history of the case:

J. O.; white male; sailor; Dane; admitted August 31, 1899; no history (patient spoke no English).

August 31.—Physical examination.—Age about 30. Heavily built, well-nourished, well-developed man about 6 feet tall, weighing about 170 pounds. Skin flushed, face wore anxious expression, breathing labored, much restlessness. Pupils equal, react normally. Tongue dry, with dark coating. Teeth nearly covered with dark-colored sordes. Breath offensive. Nothing abnormal found in chest. Abdomen tender. Reflexes slightly exaggerated. Temperature, 103; pulse, 110; respiration, —. During the day patient vomited quantity of slate-colored material. Great thirst.

September 1.—Patient said to have had a restless night. Vomiting continued. Vomitus dark green or black. Pains in abdomen, and frequent stools. Temperature, 102.6; pulse, 114; respiration, 32.

September 2.—Nothing retained in stomach. Great thirst. Tongue swollen, dry, and dark. Profuse perspiration. Swelling of ankles. Examination of urine showed trace of albumen. Examination of blood for plasmodium proved negative. Temperature, 103.2; respiration, 36.

September 3.—Skin has turned slightly yellow. Conjunctiva injected and yellowish. Vomiting and diarrhea continue. Patient has frequent attacks of chills and sweats constantly. Some blood in stools; dark and clotted.

September 4.—No change in symptoms. In right chest moist râles in front and back. Temperature, 104; pulse, 126; respiration, 40.

September 5.—Patient delirious; tied to bed. Sighing respiration; groaning constantly. Pulse weak and very irregular. Cold sweats. Tongue and mouth parched; mucous membrane cracked, almost black. Short, dry cough. Over right upper lobe, dullness; increased vocal fremitus; tubular breathing; fine, moist râles. Temperature, 102.6; pulse, 140; respiration, 42.

At 5 p. m. patient in condition of collapse, unconscious, cyanotic. Death at midnight.

Necropsy.—Body well nourished; rigor mortis marked; abdomen distended; inguinal glands enlarged; peritoneum normal; appendix normal; pericardium contains bloody serum; heart contains dark fluid blood, endocardium of both auricles and left ventricle reddened, intima of coronaries likewise inflamed, heart muscle and valves apparently normal; lungs congested and odematous, pleuræ free from adhesions. Kidneys very much enlarged, nearly black; markings obliterated; capsules not adherent. Stomach: Mucous membrane congested and shows many small hemorrhages; contents contain blood. Intestines: Small gut near stomach is congested and has patechial hemorrhages; rest much inflated. Large gut inflated, mucous membrane in places congested. Spleen much enlarged, very dark, and almost fluid in consistence. Air passages and mouth congested and in places ulcerated; œsophagus normal. Brain meninges congested and contain increased amount of fluid. Smear from spleen shows large bacilli in chains; these have square or cupped ends; stain by Gram's method.

Diagnosis: Intestinal anthrax.

Pieces from liver, spleen, and kidney are put into formalin solution to stop decomposition, which has already begun. No facilities for taking cultures at autopsy, and formalin prevents them from being taken from tissue preserved.

Liver shows congestion of vessels and dilation of capillaries. Liver cells well preserved. The same long bacilli as found in smear from spleen can be demonstrated in the capillaries and smaller vessels. But there are other smaller, shorter bacilli in large numbers. These are doubtless saprophytic.

Spleen shows large amount of blood pigment; cells do not stain very well; no large increase in blood. Bacilli of both kinds found in large numbers.

Kidneys show very great loss of tubular epithelium; many tubules are filled with detritus; show some casts; vessels are engorged; blood pigment in considerable quantity is seen. This organ, which does not show decomposition like liver and spleen, only shows the large bacilli in chains, and not in very great numbers.

This description agrees in the main with the description of intestinal anthrax given by Billings in the Twentieth Century Practice. However, the kidney lesions are different; the very dark color of these organs is not described as typical of anthrax, nor is the marked destruction of the kidney epithelium. It is probable that there was in this case a preexisting nephritis, which, with the venous stasis, due to the poor heart's action and the irritation caused by the disease, might well produce these marked changes. The finding of the bacteria was enough to make the diagnosis sure, as the anthrax bacillus is morphologically distinct from other bacteria. The bacillus of malignant œdema most resembles it, but this last does not stain by the Gram method.

This case occurred at a time when our city was much disturbed by presence of yellow fever in the immediate vicinity, and as our case resembled this disease in many points it will be interesting to compare the two.

There was a sailor of uncertain previous history who had a high temperature, albuminuria, black vomit, and who died in six days after admission; yet the temperature and pulse curves were not those of yellow fever, there was at the necropsy no jaundice, and the spleen was enlarged. On necropsy this case had to be differentiated from yellow fever, and likewise from pernicious malarial fever. All of these diseases cause destruction of the blood cells, and all naturally have points of resemblance. I have therefore tabulated the findings at autopsies on cases of yellow fever and pernicious malarial fever, and will compare them with the findings in this case.

The morbid anatomy of malarial fever is compiled from the works of Thayer, Osler, and Manson, while that of yellow fever is taken principally from a report of Dr. Eugene Wasdin, of the Marine-Hospital Service.

Malarial fever.	Yellow fever.	Anthrax (case in question).
May be jaundice.	Great jaundice.	No jaundice at necropsy.
PERITONEUM.	PERITONEUM.	PERITONEUM.
No changes.	Yellow, with yellow fluid.	Normal.
PERICARDIUM.	PERICARDIUM.	PERICARDIUM.
Normal.	Bile-tinged fluid.	Bloody extravasation.
HEART.	HEART.	HEART.
Normal; blood hydræmic.	Right heart contains dark fluid blood; otherwise normal.	Contains dark fluid blood; endocardium somewhat inflamed.
LUNGS.	LUNGS.	LUNGS.
Generally normal.	Congestion.	Congestion and œdema.
SPLEEN.	SPLEEN.	SPLEEN.
Enlarged; dark; generally soft; much blood in organ.	Normal.	Enlarged; very dark; almost fluid.
LIVER.	LIVER.	LIVER.
Enlarged; softened; congested; may be pigmented dark slaty gray.	Normal in size; in color from a light buff to a dark brown; often nutmeg; veins contain dark blood; consistency firm.	Considerably enlarged; light in color; firm; fluid blood in veins.
KIDNEYS.	KIDNEYS.	KIDNEYS.
Slight changes; moderate pigmentation; parenchymatous degeneration possible.	Congested and swollen; color, pale; cortex swollen; fatty areas at base of pyramids.	Nearly black; capsules not adherent; much enlarged; marking obliterated.
STOMACH.	STOMACH.	STOMACH.
Generally normal; may contain pigment; congestion with hemorrhage possible.	Mucous membrane swollen and congested and shows patches of extravasation and erosions; blood in contents.	Mucous membrane congested and shows many small hemorrhages; contents contain blood.
INTESTINES.	INTESTINES.	INTESTINES.
Generally normal.	Same as stomach.	Upper bowel same as stomach; large intestine inflated, shows a few patches of congestion.
BRAIN.	BRAIN.	BRAIN.
Chocolate discoloration; vessels congested.	Congestion.	Meninges congested and contain increased amount of fluid.
MOUTH AND PHARYNX.	MOUTH AND PHARYNX.	MOUTH AND PHARYNX.
No change.	Congestion and bloody extravasations.	Congestion.

This case is, as we have seen, differentiated from yellow fever by the enlarged spleen, the changes in the heart endothelium, the absence of jaundice, and in the different appearance of the liver; from malarial fever by changes in the brain, heart, kidneys, and stomach. But the principal point of differentiation is in the microscopic findings. The crescentic plasmodium is found in pernicious malarial fever; a small bacillus, motile, not staining by Gram, is now recognized as the cause of yellow fever; while the bacillus anthracis is very large, with square ends, is nonmotile, forms chains, and stains by Gram. There was another bacillus found in the tissues, but this was only found in those places where decomposition had begun, while the large bacillus was found in the kidneys, which had not begun to decompose, as well as in the spleen and liver, which showed signs of decomposition. These large bacilli showed no spores; but the bacillus of anthrax does not begin to form spores until its surroundings become unfavorable.

How the infection occurred in this case I am unable to explain on account of the lack of previous history. The bacillus of anthrax may be swallowed with meat; taken in through the lungs, as has been observed repeatedly with rag pickers; or inoculated through the skin, either in a wound or by flies, though this last way usually produces a malignant pustule.

C. R. G.

BERI-BERI.

A. S., a mulatto, 23 years old, native of West Indies, was admitted to the United States Marine Hospital, Vineyard Haven, Mass., December 2, 1899; died December 8, 1899.

Family history.—Negative.

Previous personal history.—Has never experienced any serious illness, and save for diseases incident to childhood (measles, whooping cough, etc.) has always enjoyed health.

He was admitted to hospital on the afternoon of December 2, 1899, from the barkentine *Arlington*, at which time he gave the following history: Two months previous to his entrance to hospital, while his vessel was trading on the coast of Africa, he, with two other members of the crew, was taken ill, their symptoms being similar—these: Pain in the abdomen with swelling of the stomach and belly; vomiting and consequent loss of appetite; occasional frontal headache and periodical spells of dizziness; obstinate constipation. He denied the presence of any chill or fever, and also any tendency to diarrhea. Stated that no member of crew, except captain, went ashore while on the coast of Africa; that the food and water consumed by crew, with the exception of some fowls and fish, were taken on before the vessel sailed from Boston. Admitted that the diet, as regards meat, consisted very largely, for several weeks, of fish. He was treated by the captain during the voyage home with cathartics, quinine, etc. The distention and pain in abdomen, and almost constant vomiting, continued for six weeks, but about two weeks prior to entrance to hospital these symptoms ceased suddenly. At this time first noticed that he was growing extremely weak in legs and arms, the upper extremities becoming partially paralyzed. His bowels ceased to operate at this date, in spite of frequent cathartics, etc., administered by the captain. The paralysis and weakness progressed from this date in a marked and rapid degree. On admission, patient had to be carried to ward, he being in a helpless condition. He was fairly well nourished, though muscles of arms and shoulders were somewhat atrophied. Expression anxious; eyes bright and slightly injected; temperature, 36.3°; pulse, 124, full and soft; respiration labored, rather shallow and rapid. Complained of being cold. No pain, but dizzy and very nervous. He was put to bed, hot water bottles applied. Put on milk diet. At 7.30 p. m. temperature was 37.2°. An enema of warm water, soap suds, in which was dissolved 30 grams of Rochelle salts, was given. Only slight movement of bowels resulted.

December 3.—Patient's condition about the same as on yesterday. A high enema of warm water and suds with 60 c. c. of olive oil was given, followed in one hour by ℞ 01. ricini 15 c. c., 01. tiglii 2 m. Bowels moved freely during afternoon and evening, and patient said he felt better.

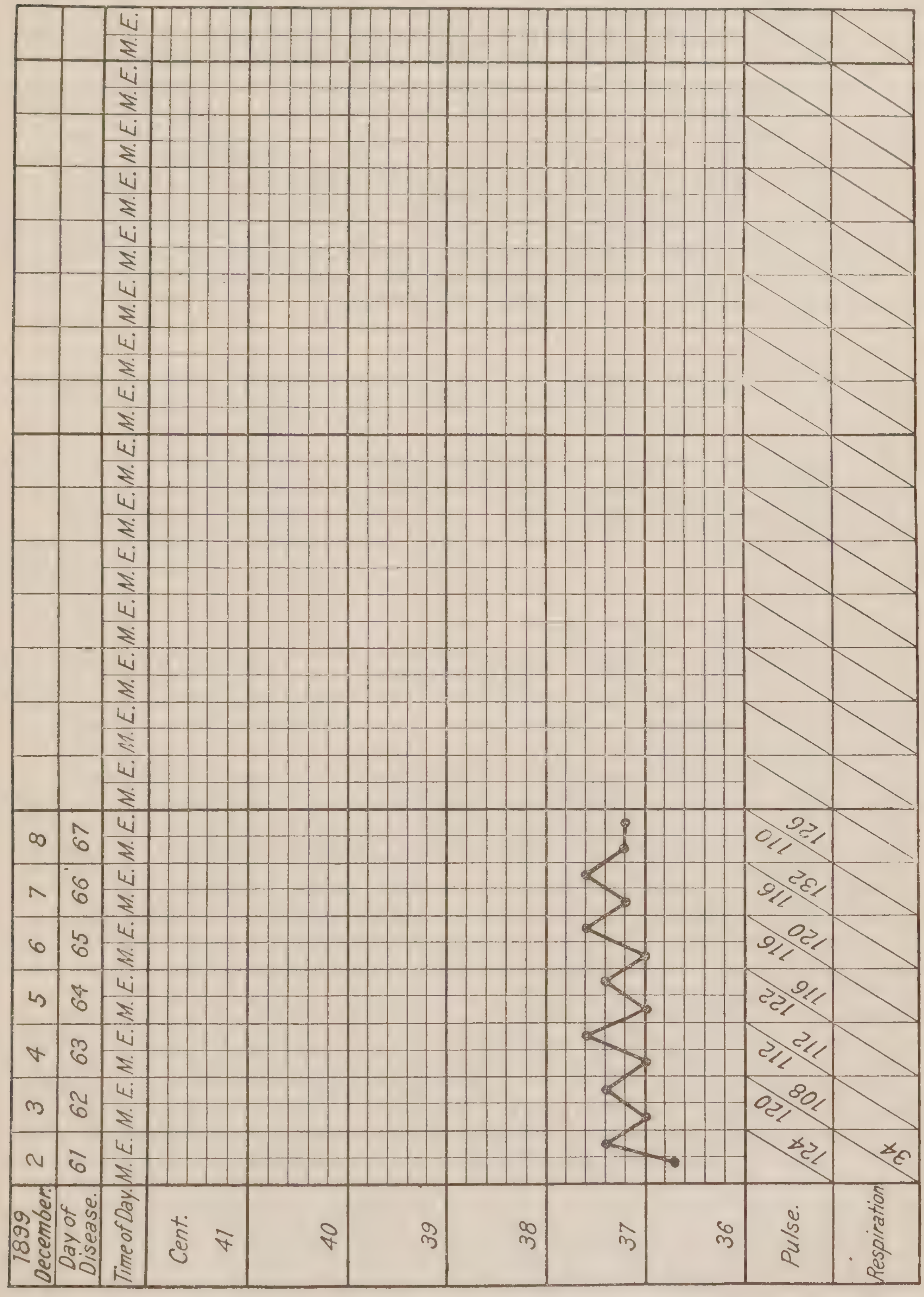
December 4.—Seems weaker, though appetite is good. Elix. fe. quinin et strych. phos. in 8 c. c. doses after meals, ordered.

December 5.—Patient very nervous and noisy all night. Complained of severe pain in belly at 3 a. m., and was given one-fourth grain morphine, hypodermically. Partial paralysis of upper extremities more marked; weaker and much more helpless. ℞ of 4th instant continued.

December 6.—Paralysis more marked. Has no use of limbs whatever. Morphine was again necessary last night to quiet excessive nervousness and pain in abdomen. ℞ of 4th instant continued.

December 7.—Bowels moved freely. Appetite remains good. Heart's action, though fast (116), is full, strong, and regular. Temperature has been practically normal all along. Respiration rapid and shallow. Is very weak. Morphine again necessary last evening.

December 8.—Patient very weak. Pulse 120, strong, regular, and full. Breathing rapid and shallow. Temperature, 37.1°. Patient died at 11.40 p. m. Diarrhea developed in afternoon, and elix. iron, quinin and strychnin phos. was stopped.



Name, A. S.; age, 23; disease, beri-beri.

Heart's action continued regular and strong up until near the hour of death. Respiration grew more shallow and fitful. Death resulted from the muscles of respiration becoming paralyzed.

NOTE.—Patient never had anasarca while in hospital and denied ever having had it.

Necropsy (*thirty-three hours after death*).—Body of a fairly nourished mulatto. Cadaveric rigidity slight. No scars or marks. Suggillation. Upper extremities and muscles around the shoulders atrophied. Examination of brain: General appearance externally normal; weight, 1,400 grams; on removing the calvaria the dura mater was easily separated from the bone; surface of the dura mater smooth; the subarachnoid space filled with serum; pia mater transparent and not adherent; nothing denoting deterioration of the cerebellum, pons varolii, or medulla observed; no destructive lesion or change of normal condition in motor area; tissue of ascending and middle frontal and parietal convolutions on both sides without sign of disease. Heart: Pericardium contained 60 c. c. of amber fluid; left side of heart hypertrophied; evidence of fatty degeneration; weight, 370 grams; valves all intact; the columna cornae muscles of left ventricle marked. Right lung: Weight, 820 grams; lung normal. Left lung: Weight, 510 grams; lung normal. Stomach: Normal in appearance; contained portion of undigested meal. Liver: Weight, 1,780 grams; both lobes congested. Gall bladder: Light in color; contained 8 c. c. of bile. Spleen: Weight, 190 grams; normal in appearance. Right kidney: Weight, 210 grams; somewhat enlarged; capsule adherent, congested; structural appearance of cortical and medullary normal. Left kidney: Weight, 205 grams; in other respects similar to right kidney. Intestines: Distended with gas; otherwise normal. Bladder: Contained about 500 c. c. urine, normal in color, considering length of time it had been in bladder; slight trace of albumin revealed on examination of specimen.

F. W. M.

HODGKIN'S DISEASE; CHRONIC ADHESIVE PERICARDITIS; CHRONIC PARENCHYMATOUS NEPHRITIS.

L. W., aged 28 years; nativity, Alabama; admitted to United States Marine Hospital, Memphis, Tenn., February 26, 1900; died, April 6, 1900.

History.—Patient stated that he had been ill about one year, during which time he had suffered chiefly from cough and dyspnœa. Examination showed great weakness, puffiness of face, and œdema of feet and legs; area of præcordial dullness greatly enlarged; heart's action weak and irregular; abdomen swollen; liver enlarged; urine diminished in quantity and loaded with albumin. Microscopical examination showed epithelial and hyaline casts; complained occasionally of severe pain in cardiac region; temperature throughout his illness was irregular, ranging between 37° C. and 39.5° C.; treatment was directed to the kidney lesion. His condition did not show any marked change, and patient was still up and about the ward; but on the day previous to his death he left the hospital without permission and came back almost pulseless, death occurring within twenty-four hours.

Necropsy (*twenty hours after death*).—Body that of a colored male, fairly well developed and nourished; rigor mortis slight; considerable œdema of subcutaneous tissues. Upon opening the chest a large nodular mass, about the size of a small orange, was seen in the anterior mediastinum. It was apparently composed of enlarged lymphatic glands and completely surrounded the trachea bronchi and great vessels. It was adherent to the pericardium and left lung, but not to sternum. Section showed the tumor to be made up of smaller tumors surrounded and bound together by dense fibrous tissues. The outer portion of many was of a dark bluish color. The central area in most was firm, but in some was soft. The mass exerted considerable pressure upon the structures which it surrounded, but in none was there much narrowing of the lumen. Microscopical examination showed the tumor to be composed of small round cells in a reticular stroma. Left lung weighed 566 grams, and appeared normal. Right lung weighed 823 grams, and showed marked congestion at base; pericardium was adherent to heart, lungs, and diaphragm; a layer of firm fibrinous exudation, 2 cm. in thickness, almost entirely obliterated the pericardial cavity. Weight of heart, with pericardium, 1,150 grams; walls of heart thin and pale, valves normal. Spleen somewhat enlarged, and contained a number of grayish-white round bodies about the size of a pea; weight of spleen, 340 grams. Right kidney weighed 355 grams; left, 350 grams; both large and soft; capsules nonadherent; cortical portion swollen and pale. Left kidney contained an infarct, wedge-shaped, base to cortex; outer portion hemorrhagic, central area white. Liver weighed 2,280 grams and presented the appearance characteristic of nutmeg liver. Brain weighed 1,440 grams and was normal. Stomach and intestines congested, but otherwise normal.

D. E. R.

EXTRAVASATION OF URINE.

L. J.; age, 65 years; born in Kentucky; admitted to United States Marine Hospital, Evansville, Ind., November 8, 1899; died November 11, 1899.

History.—Patient entered hospital on the afternoon of the 8th. Had been sick since the Saturday previous. Was unable to make water except by straining hard, and then only a few drops would be passed. Early Wednesday morning he suddenly experienced relief, but still could not pass any urine. This relief was without doubt due to the rupture of the urethra, which allowed about two or three days' accumulation of urine to be poured into the tissues. When he began to feel worse he consented to let his wife send word to the hospital for the ambulance. On admission he was suffering some pain, mostly in the hypogastric region. His temperature had reached 39° C. A catheter was passed easily, and the bladder was kept well drained, but the gangrenous inflammation extended into the scrotum, penis, and abdominal muscles, and death occurred at 7.20 a. m. November 11, 1899. This patient had had no attention from a physician until he entered the hospital.

Necropsy (*twenty-four and one-half hours after death*).—Rigor mortis marked; pupils dilated; body well developed and nourished; gangrenous condition had extended up abdominal wall to a point midway between the umbilicus and sternum. The scrotum and penis were also involved, as were also the deep tissues about the neck of the bladder. Brain: Weight, 1,255 grams; normal. Heart: Weight, 485 grams; normal. Right lung: Weight, 585 grams; congested; otherwise normal. Left lung: Weight, 452 grams; congested; otherwise normal. Numerous pleuritic adhesions bound down both lungs. Liver: Weight, 2,035 grams; normal, slight congestion. Spleen: Small; mottled; weight, 145 grams. Right kidney: Weight, 247 grams; normal. Left kidney: Weight, 237 grams; normal. Gastro-intestinal organs normal. Bladder walls thin. Urethra opened up throughout its entire length and site of rupture found to be in anterior portion of membranous portion. No sign of a stricture could be found. Case was probably one of spasmodic stricture of bulbous portion of urethra. The catheter that was tied in to drain the bladder was a No. 10E soft rubber and was passed without the least trouble, thus showing absence of organic stricture.

TUBERCLE SUPRARENAL CAPSULES.

W. Z. was admitted to United States Marine Hospital, New Orleans, La., July 28, with the following history:

Age, 31; born in Germany; married; no specific history; had one or two attacks of gonorrhea in the last ten years; last about five years ago. One year ago, while on a cruise in tropical waters, he contracted Chagres fever. Since then, he said, he has never been entirely well. Present illness dates from his attack of fever. Patient stated that he had been gradually failing in health and strength and had lost much flesh. His digestion was becoming poor and that within the last month or two he had suffered from extreme irritability of the stomach, his food being ejected in many instances one or two hours after meals. In addition to this he also observed that while originally of a fair complexion, he had been steadily growing darker and darker, till at the time of admission his skin was in places of a deep mahogany color and the whole superficies of his body more or less pigmented. On admission the following symptoms were observed: The most striking characteristic was the universal pigmentation of the skin; the face and hands were of a dark bronzed appearance and the lips almost black; this pigmentation extended into oral cavity, the inside of the lips and the bases of the alveolar processes participating in the coloring. The pearly conjunctiva indicated a rather severe grade of anæmia. Physical examination was essentially negative; the only anomaly observed was relatively small area of cardiac dullness and the feebleness of the apex beat. The circulation was profoundly depressed, the pulse being very small and hardly perceptible at the wrist, yet the rate of cardiac pulsation was not notably increased, being 108 on admission, which rest in bed soon brought down to 88. The temperature was 37.1°. The stomach and whole alimentary tract were in an irritable condition, the patient being unable to retain nourishment except in very small amounts. There was also considerable diarrhea present. In view of the almost entire absence of marked physical signs to account for symptoms, coupled with the long existence of the disorder, the irritability of the stomach, and deep pigmentation of the skin, a diagnosis of Addison's disease was made. The treatment instituted was stimulation, small doses of Fowler's solution, the periodical administration of small quantities of milk with lime water, and lavage of the stomach and colon. Suprarenal capsules were also procured, and the equivalent of two glands per day were ordered for the patient. The patient steadily failed in strength until he died very quietly at 3.20 p. m. July 31, 1900, the temperature never having risen over 37.8°.

Necropsy (*one hour after death, July 31, 1900*).—Body of a fairly well developed young man, 5 feet 9 inches in height and about 60 kilograms in weight. Rigor mortis not present, no sugillation, pigmentation of skin and oral mucous membrane well-marked, panniculus adiposus moderate. Thoracic cavity: Pleural sacs normal, no ecchymoses and no adhesions. Right and left lungs normal with exception of slight hypostatic congestion at bases; weight right lung 350 grams, left lung 300 grams. Pericardium normal, contained about 25 c. c. of serum, no adhesions. Heart, weight 220 grams, right ventricle full of fluid blood. On anterior surface of right ventricle a considerable area of fatty degeneration was present, the muscular substance of the heart being represented by a layer not more than the thickness of two or three sheets of paper, posteriorly the thickness of the ventricle was normal, left ventricle normal in thickness and empty. Right auricle normal, left auricle normal; mitral tricuspid, aortic semilunar, and pulmonary semilunar valves normal. Peritoneum: Peritoneal cavity normal, usual amount serum present, no adhesions. (1) Liver: Weight 1,700 grams, dark in color, very firm, and on section was found to be in a well-marked condition of cyanotic induration. (2) Stomach normal in size, containing small quantity of curdled milk, nothing abnormal noted except slight dilation of the capillaries. (3) Spleen normal in size, weight 170 grams, firm on section, splenic pulp apparently normal; intestinal tract normal and contained milk in various stages of digestion. Vermiform appendix 10 centimeters long and normal in appearance and on section. Right kidney: Weight 115 grams, capsule strips easily, normal on section, no amyloid reaction with tincture of iodine. Left kidney: Weight 170 grams, capsule strips easily, normal on section, no amyloid reaction with tincture of iodine. Right suprarenal capsule was slightly enlarged and found literally stuffed with miliary tubercles; in the center of the gland was found a small casedting focus filled with tuberculous matter. Left suprarenal capsule was in the same condition as the right. In neither gland could a trace of the normal medullary substance be found. Ureters, nothing abnormal noted. Bladder empty and normal on section.

J. W. S.

ACUTE CATARRHAL INFLAMMATION OF STOMACH.

J. O.; aged 26; nativity, Sweden; admitted to hospital at Norfolk, Va., August 31, 1899; died September 6, 1899.

The patient was admitted suffering with high temperature, frequent pulse and uncontrollable vomiting, hematemesis, tenderness over stomach, and considerable pain; died from exhaustion on the sixth day.

Necropsy (*ten hours after death*).—Body well nourished; rigor mortis marked; abdomen distended; inguinal glands slightly enlarged. Peritoneum normal; appendix normal. Pericardium contained bloody serum. Heart contains dark fluid blood; endocardium of both auricles and left ventricle reddened; intima of coronaries likewise inflamed; heart muscle and valves apparently normal. Lungs conjested and œdematous. Pleuræ free from adhesions. Liver enlarged, light in color, firm. Spleen enlarged, very dark in color, and almost fluid in consistency. Kidneys nearly black; capsules not adherent; much enlarged; marking obliterated. Stomach: Mucous membrane conjested and shows many small hemorrhages; contents contain blood. Intestines: Small intestine near stomach shows small hemorrhage and congestion; rest much inflamed; large intestines inflated; mucous membrane in places is conjested. Œsophagus: Normal; air passages and mouth congested and in places ulcerated. Brain: Meninges congested and contain increased amount of blood. Smear from spleen shows large bacilli in chains; ends square or capped; look like anthrax bacilli.

E. E. F.

PERIPROCTITIS; ABSCESS; SEPTICÆMIA.

C. A.; age, 34; nativity, Norway; admitted to hospital at Norfolk, Va., June 25, 1889; died July 2.

At the time of admission the patient had moderate swelling and redness in the right buttock, with considerable pain in the buttock and the rectum. Pus did not appear to have formed yet. Poultices, with tonics internally, were used. In a few days an abscess formed and pointed in the buttock, and on June 30 the patient was anesthetized with ether and the abscess was opened and drained. It had burrowed widely about the rectum and the contents were excessively foul. The inflammation also affected the lymphatics of the under side of the thigh as far as the knee.

The day following the operation the same phlegmonous inflammation appeared in the left breast between the nipple and the shoulder. In another day death took place from septic fever. There was no evidence of tuberculosis in the patient and he could give no information which tended to explain the cause of his disease.

Necropsy (*twelve hours after death*).—Body of an adult male, fairly well nourished. Initials "C. A." tattooed on right forearm; also the initials "McG." Height, 5 feet 9 inches; rigor mortis present; post-mortem lividity over all the dorsal surfaces of the body; other surfaces slightly mottled. Fluctuation in an area of the skin about the size of the palm between left nipple and shoulder. Operation wound in right buttock. Right thigh swollen and greenish and skin tense. Cranium opened. Blood vessels of meninges very full of dark blood, the fine network showing clearly. Nothing else worthy of note was found in the examination of the brain. The body was opened by a linear incision from throat to symphysis pubis. The great omentum covered only the upper third of the abdominal contents. The peritoneum was greenish in color and glistening. The intestines were distended with gas. Blood vessels of peritoneum full and dark red. An inappreciable amount of clear serum in the cavity. The vault of the diaphragm was on a level with the lower border of the fourth rib. The anterior mediastinum contained nothing notable. The surface of the lungs was dark and mottled. The left lung was adherent over a small surface to the pericardial sac and was attached by a single narrow fibrous band which extended from the lower border across to the outer chest wall. The right lung was attached on all sides by well-formed and moderately firm adhesions. There was no serum in the cavities; the pericardium normal. The veins of the heart were plainly visible. The right auricle contained 75 c. c. of dark fluid blood. The right ventricle contained a small quantity of the same kind of blood and some dark clots and firm buffy clots. The left auricle contained 25 c. c. of dark fluid blood. The left ventricle was contracted and empty. The pulmonary artery held water, the aorta did not. The right auriculo-ventricular opening admitted the ends of five fingers. The cusps were normal in appearance. The pulmonary valve was healthy in appearance. The left auriculo-ventricular opening admitted the ends of three fingers. The cusps were thickened at the borders and the left cusp was contracted. The aortic valve appeared perfectly healthy. The lung tissue contained no nodules nor tubercles and was crepitant throughout and exuded very dark blood wherever cut. The spleen was adherent posteriorly to the border of the stomach. It was 13 c. m. long, 7 c. m. broad, and 3½ c. m. thick. Its tissue was normal throughout. The kidneys, suprarenals, urinary bladder, and generative organs were examined and were normal in appearance throughout. In the lower part of the ileum the blood vessels were very full and small hemorrhages were found under the mucous membrane. The mucous membrane of the anterior wall of the stomach was dark and full of blood. The gall ducts, liver, and pancreas presented nothing abnormal in appearance. All the tissues on the posterior part of the thigh were infiltrated with thin, light yellow pus and contained gas. The abscess cavity extended nearly around the rectum and outward toward the hip joint. No opening was found between it and the rectum. The abscess in the left breast was confined to the skin and subcutaneous tissues.

A. C. S.

PERITONITIS (TRAUMATIC).

J. B.; age 60; nativity, Connecticut; admitted to United States Marine Hospital, Mobile, Ala., September 27, 1899; died September 29, 1899.

History.—Patient gives history of being injured four days previous to admission to hospital by running violently against an open door, striking the lower part of abdomen. He experienced severe pain from the time of injury, which steadily increased in severity up to the time of admission to hospital. Bowels had not moved since injury (ninety-six hours) although cathartics had been administered freely. The captain of ship stated that during the previous night he had vomited a great deal and the vomited matter had a very offensive odor. Examination on admission showed patient to be suffering intensely. Temperature 38.6 in axilla; pulse 124; respiration 26. Abdomen was moderately distended, hard, and very tender on pressure. There was present a small incomplete inguinal hernia on left side which patient stated he had had two months, but this could be readily returned to abdominal cavity. An attempt was made to produce evacuation of the bowels by cathartics and high rectal enema, but was unsuccessful. The following morning vomiting was distinctly faecal, and as patient's condition was growing worse an exploratory laparotomy was decided upon and performed, but no cause for the intestinal obstruction could be found other than the peritonitis which was accompanied by a sero-fibrinous exudation causing adhesion of the coils of intestines with themselves and with the peritoneum. The peritoneal cavity was washed out thoroughly and closed. Patient rallied nicely from the operation, but began to decline rapidly toward evening and died at 5 a. m. the following morning.

Necropsy (ten hours after death).—Owing to the fact that patient's shipmates were waiting to bury the body, a complete necropsy could not be made; body well developed, appears that of a man 60 years of age; rigor mortis slight; post-mortem discoloration is present on neck, thighs, and back; a few pale-greenish clots on abdomen. A wound 8 cm. in length is seen in middle line of abdomen between umbilicus and pubes. Edges of wound held in apposition by sutures, but no union has taken place. Sutures cut and incision extended from pubes to ensiform cartilage and the abdominal cavity laid open. The peritoneum does not present the shining appearance usually seen, but is of a dull grayish hue and covered in large measure by a greenish-yellow exudation. Intestines, both large and small, are firmly adherent to parietal peritoneum in many places. The various coils of small intestine are bound to each other by the exudation. The surface of intestines is of a dull gray color, covered with exudation. The walls are much infilated, but not gangrenous in any portion. Intestines contain a considerable quantity of semifluid fæces. No obstruction was found at any point.

D. E. R.

CHRONIC INFLAMMATION OF INTESTINES.

J. D.; male; age, 51 years; sailor; unmarried; admitted to hospital September 11, 1899, died November 7, 1899.

Family history.—Negative.

Personal history.—Was treated in this hospital for chronic diarrhea from middle of February to March 17, 1899, the same trouble from which he again suffers, and that when he left the hospital he had completely recovered. About a month prior to admission his bowels became loose again, stools watery and at times yellowish and at others greenish in color, and containing mucus. He has no pain worthy of note; sometimes slight tenesmus; has from eight to ten stools per day. On admission to hospital his temperature was 37.6° C. Diagnosis: Chronic inflammation of intestines. Treatment: Ol. ricini, 15 c. c.

September 12.—Temperature 38.6° C., patient going to stool ten to twelve times in twenty-four hours. Microscopical examination of stools show pus cells in abundance; no amæba. Given bismuth subnit. 0.66 grams every four hours, and argenti nitras, 1.5, aquæ, 1,000, high injection every other day. Diet of milk, chicken broth, oatmeal.

October 10.—Stools continue ten to twelve in twenty-four hours; patient growing weaker; does not complain of pain. Same treatment continued and in addition 100 c. c. whisky given daily, also tr. ferri chlor, 0.50, three times daily. Tinct. opii, and starch-water injections given alternate days with argenti nitras injections. Slight improvement in condition until November 1, when patient began failing again. On November 3 he lost all control of bowel, and fæces were discharged involuntarily and almost continually. Death occurred on the 7th.

Necropsy.—Male; much emaciated; post-mortem lividity in dependent portions of body; rigor mortis not very marked. Pupils irregularly dilated. Skull: Parietal and coronal sutures very well marked. On removing calvarium membranes of brain found very pale; also the brain; otherwise normal in appearance. On opening abdominal cavity tissues are very dry on section, peritoneum congested, omentum thickened. Thoracic cavity: Normal in appearance; tissues very dry. Pericardium normal in appearance and containing about 2 c. c. of fluid. Heart rather small; normal in appearance. Right ventricle normal, containing post-mortem clot; right auricle normal; left ventricle: Walls slightly thickened, containing post-mortem clot. Left auricle normal; all valves competent and normal in appearance. Weight of heart after opening, 265 grams. Left pleural cavity: Parietal pleura congested. Left lung adherent throughout, except anterior surface; also adherent to diaphragm; lower lobe somewhat indurated; weight, 390 grams. Right pleural cavity normal in appearance, containing a small quantity of fluid. Right lung normal in appearance; one small adhesion at apex posteriorly; weight, 540 grams. Stomach empty; rugæ thickened; pyloric opening diminished. Small intestine congested throughout. Beginning at a point about 8 inches from ileo-cæcal valve ileum thickened and much ulcerated for about 3 feet. All mesenteric glands much enlarged and several ulcerated patches found in mesentery. Large intestine: Ascending, transverse, and descending colon much congested. Sigmoid flexure: Lumen of gut diminished; walls thickened, especially on mesenteric border, where the wall is about 1½ inches thick for about 12 inches. Thickening has hard, woody feel and mucous membrane adherent. Rectum thickened and lumen somewhat diminished. Liver large; normal in appearance; weight, 1,825 grams. Kidneys: Left pale in color, otherwise normal in appearance: weight, 135 grams. Right same as left; weight, 126 grams. Bladder normal in appearance, containing about 10 c. c. of urine. Spleen: Slight adhesion to diaphragm; friable; somewhat congested; weight, 222 grams. Carcinoma believed to have existed, although there were no symptoms of such during life other than diarrhea and rapid emaciation.

G. M. C.
G. P.

TUBERCULAR ULCERS OF INTESTINES.

Brights disease.

N. N.; age, 41; nativity, Sweden; admitted to the Marine Hospital, Mobile, Ala., May 28, 1900; died June 5, 1900.

Clinical history.—Very little history obtainable. Patient states that he has been suffering from diarrhea for about one month; at first he passed considerable blood and had 15 to 20 operations a day, with some griping and temesmus, which rather points to large bowel. The general appearance is that of a very sick man; patient is very weak and appears exhausted; no pain, except on pressure over abdomen, and then very slight. Spleen slightly enlarged; lungs and liver appear to act normally; murmur at base of heart during systole. Cerebration is carried on with difficulty; the man is slow to answer questions and passes into a somnolent condition shortly after being aroused. Pupils normal in size and reaction to light. No paralysis. Clinical diagnosis, probable tubercular ulceration of intestines. For a few days before death stools were passed involuntarily in bed.

Necropsy (*occupying two hours*) *June 6, 1900.*—Body of medium-sized white male; very much emaciated; apparent age, about 50 years. Rigor mortis present. No ecchymosis on body. Pupils dilated; small cicatrix inner aspect left tibia. Abdomen slightly swollen. Body opened by a continuous incision carried from chin to symphysis pubis, and abdominal cavity first laid open. Abdominal organs in their normal position; no foreign body in abdomen; the intestines protrude slightly; intestines appear much congested. The arch of the diaphragm on both sides reaches between the fifth and sixth ribs. There is considerable fluid blood in veins of neck; arteries are empty. There are no pleuritic adhesions, the lungs being free throughout. Pericardium contains about 4 c. c. straw-colored serum. Heart just about the size of a man's closed fist; coronary arteries empty; coronary veins slightly distended in their primary ramifications; heart contained a small quantity, 25 c. c., of fluid blood in right auricle; the muscular structure of the heart is much attenuated and of a brownish-red color. The aorta slightly narrowed and contains plates of calcareous degeneration; the pulmonary artery apparently normal; valves pale and flabby; the pulmonary and tricuspid are normal; the aortic is incompetent, hardened, thickened, and contracted; mitral valve somewhat thickened. Weight of heart, 250 grams.

Left lung normal, except in posterior inferior portion, which is œdematous and discharges bloody froth on section. Right lung discolored dark brown; it is thickened and contains considerable serous infiltration; lower lobe œdematous. Weight of lung, 500 grams. Larynx and trachea contain a small quantity of mucus; both bronchi contain bloody mucus in small quantity. The right kidney is granular in appearance; line of demarcation between cortical and medullary substance is fairly well marked; capsule peels, but not readily; weight of kidney, 140 grams. Left kidney very granular and almost horseshoe in shape; the substance of organ is very hard, the capsule tears, and can not be stripped off; line of demarcation between cortical and medullary substance almost obliterated. Weight of organ, 180 grams. Ureters normal; urinary bladder empty. Liver of dark bluish brown color, bleeds easily and freely on section. Weight, 1,520 grams. Gall bladder contained about 10 c. c. viscid, ropy bile. Spleen slightly enlarged; otherwise normal. Weight, 200 grams. Small intestine contracted throughout; the mucous membrane is much inflamed, ulcerated, and partially disintegrated; these ulcers extend throughout the whole ilium; ulceration is found throughout colon, but not so thick as in ilium; some of these ulcers are 1 c m. in width and ready to perforate; the ulceration follows the course of the blood vessels and lymphatic of bowel; that is, around the lumen. The skull is exposed by an incision across the head from one ear to the other and scalp reflected forward and backward; no external evidences of injury to head are found; the skull cap is removed by being drawn through following line in which scalp is deflected. The meninges are somewhat thickened and opaque; a slight hemorrhage is found to have occurred over posterior part of left hemisphere; the brain has the bluish-black appearance sometimes observed in cases dead of pernicious malarial fever; slight punctiform hemorrhages on section. At base of brain, left side, there was a considerable area of softening, the brain becoming pulpy and washing away easily under the force of a small stream of water; the softening is confined to left hemisphere. There is scarcely any fluid in lateral ventricles. Weight of brain: Cerebrum, 1,120 grams; cerebellum, 200 grams.

W. P. McI.

NEPHRITIS.

Alcoholism and lobar pneumonia.

T. B.; aged 42 years; nativity, New York; was admitted to the United States Marine Hospital, port of San Francisco, Cal., April 11, and died April 14, 1900.

History.—Patient had rheumatism six years ago and syphilis eighteen months ago while in China. Illness began four days ago, being attended by pain in the right side of chest, low down; the latter was preceded by a chill; then followed distressing cough, attended by free mucous expectoration. On admission had diarrhea, was unable to eat or sleep, and had labored and rapid breathing. Physical examination: Expression of great distress; tongue moist and tremulous; body development and nourishment good. Chest: Base of right lung dull; also the apex posteriorly; suppressed murmur over same region; no rales heard; respiratory murmur over left lung, especially the upper lobe, is loud and harsh. On second day after admission abundant crepitant rales were heard over dull portion of lung; patient vomited medicine given, had excessive thirst, and great dyspnœa; continued cough, with greenish, tenacious mucous sputum. The latter contained the micrococcus lanceolatus in great abundance. Urinalysis: Quantity of urine in twenty-four hours, 750 c. c.; sp. gr., 1,010; color, lemon yellow; reaction, acid; chlorides absent; albumen, one-third of 1 per cent. The microscope shows granular casts, round and caudate epithelial cells, leucocytes, and detritus. The third day after admission the temperature dropped from 39.5° C. to 36° C., and patient said he felt better, but was very weak. Expectoration was less. Respirations were 38 per minute and pulse 128. In the afternoon pain in the right side of chest became very severe and patient's distress, which was great from the beginning, increased; the pulse became more rapid and feeble; dyspnœa was excessive, causing restlessness. The heart's action gradually became more feeble, and death ensued on the morning of the fourth day after admission, the eighth day of the disease.

Treatment.—Included the use of ammonium carbonate and whisky in large doses; morphine sulphate only as demanded to subdue pain. The sponge bath was employed to control the temperature, and Basham's mixture for its diuretic effect. The heart stimulants were supplemented by strychnine sulphate.

Necropsy (four hours after death.)—Body that of an adult white male, well developed and nourished. Rigidity absent; post-mortem staining over entire body; tattoo marks on both arms and a brown pigmented area as large as the palm on left shin; the median incision reveals a very thick layer of subcutaneous fat. Thorax: Firm adhesions on entire left lung from base to apex, causing the lung to tear on its removal; adhesions more recent also present over right apex; left lung weighs only 599 grams; is small, shrunken, and congested, the base being heavily engorged; the surface is covered with strong bands of adhesion and the lobes are adherent to one another by firmly organized connective tissue. Right lung: Weight, 1,280 grams; base carnified; stage of gray hepatization; a large amount of white purulent fluid escapes on section; scraped surface, after section, granular; section sinks promptly in water; the upper and middle lobes are crepitant, though middle is much congested and adherent to lower lobe by recently organized lymph. The heart: Weight, 450 grams; cavities filled with fibrinous clots; aorta atheromatous; the pericardial fluid was normal in amount. Kidneys: Right, weighs 170 grams, the left 104 grams; both are embedded in a large amount of fat and both show advanced parenchymatous nephritis with secondary contraction. The organs are pale, fatty, and granular, having adherent capsules, the left showing more advanced interstitial change; the cortical portion is narrow. The spleen weighs 320 grams; is enlarged, dark, firm on section; marked thickening of the interstitial tissue. Liver: Weight, 1,800 grams; distorted and contracted by old bands of connective tissue extending deep into its structure; further unevenness on surface of right lobe is caused by the presence of small round collections of old scar tissue, obviously due to syphilis. The structure of the organ is firm; the surface mottled. The gall bladder contains a small quantity of dark viscid fluid. Pancreas normal; weight, 110 grams. Bladder empty; normal. Intestines normal.

Brain: Cerebro-spinal fluid in excess, lateral ventricles being filled; surface of brain cloudy; the anterior and outer part of right lenticular nucleus and surrounding white matter is the seat of a cavity the size of an almond. Sections of all affected organs were preserved for microscopic study.

F. J. T.

BRIGHT'S DISEASE.

Granular kidney.

D. G.; admitted to United States Marine Hospital (Stapleton), port of New York, N. Y., March 22, 1900, and died March 30, 1900.

Family history.—Mother living; father died from dropsy.

Previous history.—Usual diseases of childhood; smokes, and has been a heavy drinker.

Present history.—Has been troubled with shortness of breath for past six months, but has been much worse for past five days; has no pain anywhere, but breathing very labored. His feet commenced to swell two weeks ago; the swelling gradually extended up the thighs; has some pain on walking; passes urine regularly, and about usual amount; has had a cold for past month; had cough with yellowish expectoration; dyspnœa at present marked; can not rest in reclining position.

Physical examination.—Inspection: Both feet, ankles, legs, and thighs swollen; peculiar pallor of face; features pinched; face swollen; puffiness under both eyes; respiration hurried and shallow; there is an epigastric pulsation; tongue fairly clean; phimosis of penis, milky discharge; contracted gonorrhea three weeks ago; heart fast, no murmurs; on expiration moist râles are heard in anterior portion of left lung; breathing tubular, posteriorly sibilant râles. Right lung: Sibilant râles over whole surface, more marked over bronchi. Palpation: Œdema of lower extremities extending to middle of thighs; lower edge of liver palpable. Percussion: Area of liver dullness increased downward and to the left. Temperature 37, pulse 130, respiration 34, on admission.

Treatment.—Milk diet; absolute rest in bed. ℞x. tinc. digitalis—gtt. 10 every six hours, alternating with nitroglycerin 0.0012 by hypo. The nitroglycerin was stopped after two doses and tinct. strophanthus—0.015 and atropine sulph.—0.0004 by hypo. every six hours; bowels kept active with magnesia sulph. and enemas of glycerin. From the 24th to 26th, inclusive, temperature was fluctuating between 37 and 39. Pulse and respiration kept high during illness; phimosis grew worse, and on March 30 the foreskin was incised about 1 inch, and glans cleaned with apparently good effect, but at 6.20 p. m. respiration grew shallow, pulse intermittent and irregular; patient in semiconscious condition; gradually grew worse; strychnine and whisky were given hypodermatically, hot bottles to extremities, hot cloths to chest. At 8.10 p. m. extremities were growing cold; pulse weaker; inspiration very shallow; pupils dilated; unconscious. Patient died at 8.15 p. m.

Necropsy (held twenty-two hours after death).—Body that of a male; apparently 31 years old; well nourished. Suggillations in dependent portion of body; pupils dilated; rigor mortis marked; superficial veins injected. Incision was made from suprasternal notch to symphisis pubis; skin and muscle dissected back; sternum reverted; considerable amount of subcutaneous adipose tissue. Remains of thymus gland absent. Pericardium: Smooth, glistening, and contains about 50 c. c. clear, straw-colored fluid. Heart: Weight, 530 grams; ventricles filled with fluid blood; veins injected; fatty degeneration of muscles; walls tear easily; valves competent by water test. Left lung: Weight, 960 grams; œdematous; adhesions between lobes; tears easily; crepitates and floats; frothy exudate in bronchi; tubercle in base of lower lobe (cheesy degeneration). Right lung: Weight, 1,020 grams; same as left, except no tubercle was found; pleura contained 1,000 c. c. straw-colored serum. Diaphragm: Attached on right between seventh and eighth ribs, and on left between eighth and ninth. Liver: Weight, 2,050 grams; capsule nonadherent; adhesions between diaphragm and liver; cuts easily; tears easily; cut section light in color. Gall bladder, distended. Right kidney: Weight, 110 grams; capsule nonadherent; markedly contracted; granular; tears easily; markings between cortex and medulla distinct on cut section. Left kidney: Weight, 135 grams; condition same as right. Spleen: Weight, 200 grams; friable; cuts and tears easily; capsule nonadherent. Stomach: Distended with gas; venous congestion over surface; rugæ well marked. Intestines, normal. Rectum, normal. Bladder, normal.

H. E. G.
G. W. S.

HEART DISEASE (MITRAL).

Hemorrhage in medulla.

C. R.; age 49 years, born in New York. Was admitted to United States Marine Hospital, Detroit, Mich., August 15, 1899; died January 14, 1900.

On admission to hospital, was suffering with intense headache in occipital region, and extending over vertex to glabellum; orbital regions had a bloated appearance and face and neck a general cyanotic hue. Legs were œdematous. Pulse weak and rapid; left heart much enlarged; a mitral regurgitant murmur. Improved rapidly, and in two weeks left hospital only to return in a month in a worse condition. He improved rapidly and gained in weight. For the next four months his condition remained unchanged, except for an occasional attack of migrain. On January 14, 1900, about 5 p. m., returned from supper table feeling in his usual good spirits. On sitting down, he was suddenly seized with a convulsion, falling sidewise. Remained conscious for about five minutes, and was able to talk. He quickly lapsed into unconsciousness, became cyanotic and had great dyspnœ. Had no marked convulsive movements of body. Pupil reflex was absent from beginning. Pulse rather slow and weak, and later was intermittent and thready. Dyspnœa grew worse, and at 10 p. m. patient died, after five hours of coma.

Necropsy (*seventeen hours after death*).—Deep lividity of dependent portions of body and around neck and face. Post-mortem rigidity marked. The body was that of a well-nourished man. Large, irreducible inguinal hernia on each side. The calvarium was removed in the usual manner, revealing a perfectly normal looking dura. The pial vessels were greatly distended everywhere, and the sulci on the cerebral cortex filled with a sero-gelatinous fluid. After weighing the brain (1,530 grams) it was sectioned, no macroscopical changes showing in the gray or white substances of cerebrum or cerebellum. On section of the medulla a fresh blood clot was found, 2 cm. square, involving the floor of the fourth ventricle. The tissues in the immediate neighborhood of the clot were softened, disintegrated, and infiltrated with hæmoglobin. Thorax: Pleuritic adhesions over entire lateral and posterior aspect of right lung. Section showed pronounced hypostatic congestion, with small areas of emphysema in upper lobe of left lung. Weight: Right lung, 750 grams; left lung, 780 grams. Heart: Weight, 470 grams. Pericardial fluid normal in amount and consistency. Left ventricle greatly hypertrophied, its wall measuring 2.4 cm. The left auricle also hypertrophied, thickness 0.5 cm. Right heart normal. The mitral valve was found incompetent, the free border of one leaf showing cicatrices and small serrations. Abdomen—Liver: Weight 2,100 grams; no pathological findings. Spleen: Weight 250 grams. On section the medullary portion was found to be greatly congested, and the spleen pulp softened and very friable. Kidneys: Right kidney (weight 130 grams) was found apparently normal; the left (weight 130 grams) was very small, with capsule stripping readily. The medulla showed marked degeneration and a total obliteration of the secreting tubules. The cortex was thin and studded with small hemorrhagic cysts. The pelvis was filled with débris, and the opening into the ureter small and tortuous. Stomach: This viscus contained 500 c. c. undigested food. The mucosa was healthy in appearance and the musculature firm and strong. The small intestine was greatly dilated with gases, and its content exceedingly foul. The mucosa was pale and the epithelial layer readily denuded. The colon was very large and the walls thickened. It contained a large quantity of scybalæ. Pelvic organs examined and revealed no pathological changes.

J. W. A.
J. G.

NEPHRITIS, CHRONIC.

C. K., aged 29 years; nativity, Sweden; admitted to United States Marine Hospital, Boston, Mass., September 18; died November 15, 1899.

History.—Occupation, seaman. Family history, good. Personal history: Had measles, scarlet fever, and typhoid fever during childhood; had pneumonia at the age of 22 years. He was treated in the United States Marine Hospital at Baltimore two and a half years ago for injury to the lower part of the back. He was there six months, and during that time he had retention of urine for seven weeks. He smoked in moderation, did not use alcohol, and denied all venereal history. On admission patient complained of dyspnœa on exertion, frequent micturition, swelling of abdomen, feet, and ankles. Physical examination showed pulse 84 per minute and rather weak. The second heart sound was slightly accentuated. Examination of urine, except for low specific gravity, was negative; later on it was found to contain albumen, hyaline casts, crystals of oxalate of lime, granular detritus, and epithelial cells. The reaction was at first acid, but later alkaline. Patient occasionally complained of slight pain over heart and pain in lumbar region. Toward the last patient had pain almost continually in lumbar region, with an occasional pain over heart and bladder, headache, hiccoughs, and vomiting, with some tenderness over bowels. Breath had urinous odor. At the evening sick call on November 15 patient was found to be much worse. His radial pulse was scarcely perceptible and extremities cold; breathing labored and rapid. Treatment: Saline cathartics, digitalis, strychnine, bismuth, and salol for an occasional diarrhea, tepid baths, hot packs, and a light, nutritious diet.

Necropsy (*twelve hours and ten minutes after death.*)—The body was that of a medium-sized white man. The general nutrition of the body was fair. Post-mortem lividity slight, rigor mortis marked, pupils equally dilated. Heart, weight 500 grams. A black clot was found in left ventricle; right ventricle empty; left ventricle wall thickened, right normal. The pericardium and myocardium contained deposits of fat. The valves appeared to be normal except for a few fibrinous bodies on the aortic and mitral valves. The pericardial sac contained a small quantity of straw-colored fluid. The aorta and other vessels appeared to be normal. Left lung, weight 350 grams, and was mottled in appearance; right lung, weight 520 grams; was congested and slightly emphysematous at base. The right pleural cavity was constricted at base of lung by adhesion; left appeared to be normal. The stomach was distended with gas; otherwise the gastro-intestinal tract appeared to be normal. Liver, weight 2,250 grams, appeared normal, ducts pervious; gall bladder empty. Pancreas, weight 145 grams. Kidneys: Left, weight 220 grams; right, weight 145 grams. The pelves of both were dilated and the mucous membrane covered with a muco-purulent secretion. The kidney substance was of a yellowish-white color and the calices irregularly dilated. On section the substance was tough. Both kidneys were embedded in an excessive amount of fat. The capsules were adherent. The ureters were dilated and contained a purulent fluid. The bladder was contracted, muscular wall thickened, and the fasciculi gave a ribbed appearance to the internal surface. The mucous membrane was thick, pale, grayish in color, and very tough. The bladder contained about 75 c. c. of milky, purulent fluid. The urethra and prostate appeared to be normal. Supra-renal bodies showed signs of fatty degeneration. Spleen, weight 145 grams. Skull, scalp, and membranes of brain appeared to be normal. Brain, weight 1,320 grams. Each lateral ventricle contained about 25 c. c. of a straw-colored fluid; otherwise it appeared normal. Examination of spinal cord was negative. F. I.

BRIGHT'S DISEASE.

Granular kidney; myocarditis; pericarditis; endocarditis; aneurism of the left ventricle.

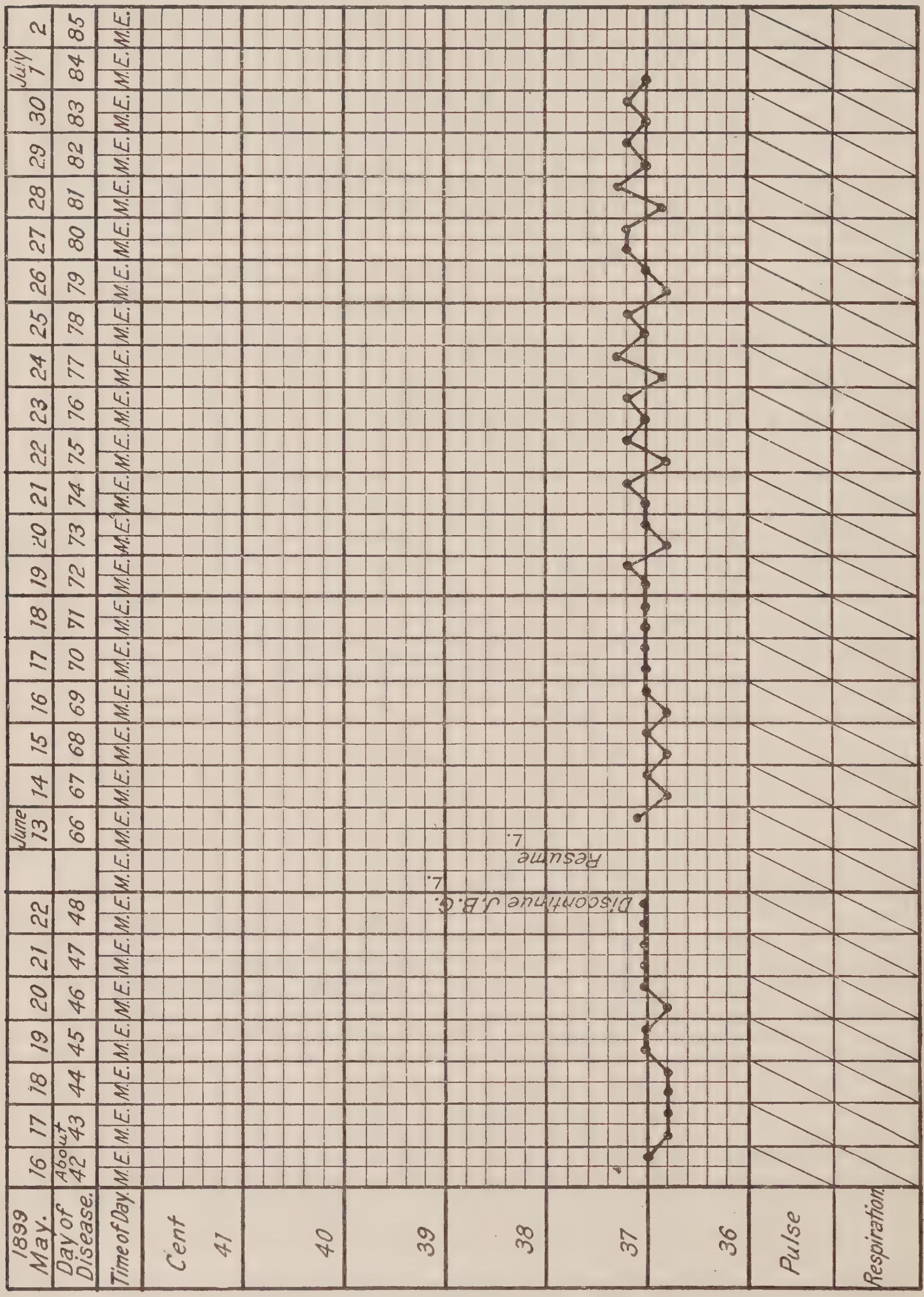
J. M.; aged 61 years; nativity, Canada; was admitted to the United States Marine Hospital, port of San Francisco, Cal., May 16, and died July 5, 1899.

History.—The patient had had gonorrhea twenty years previously, and malarial fever and la grippe subsequently; denied syphilis; family history negative. His illness began about six weeks previous to admission, with pain in the left shoulder and in the præcordia. The pain was constant, and of a dull, aching character. He also complained of numbness of the lower extremities. About four weeks before his admission to the hospital the patient noticed swelling of his feet at night. The swelling sometimes extended as high as the knees. He also complained of continual difficulty in breathing, which was increased by the slightest exertion, and was attended by a cough and expectoration of sputum streaked with blood. Physical examination showed a fairly well developed, fairly well nourished individual. The face was slightly cyanosed. Venous pulsation was plainly visible in the neck. The abdomen was pendulous. The lung resonance was normal. The cardiac area was increased in its lateral diameter, extending from the mid-sternal to the mammary line. Auscultation of lungs, negative. The heart sounds were apparently normal. The point of maximum impulse was in the region of the nipple. The second pulmonary sounds were loud and valvular. The second aortic sounds were less valvular in character. There was no difference in expansion between the two sides of the thorax. Vocal fremitus was lessened at bases of both lungs. Percussion gave defective resonance toward the bases in both lungs. Auscultation showed loud breathing, almost bronchial in character, over both lungs. Toward the bases the breathing became less distinct, and numerous mucous rales were heard. Percussion showed fluid in the abdomen. The ankles were œdematous.

May 17.—The patient passed less urine than formerly, and his legs were less swollen. There was a slight œdema of the foreskin, and the patient had Cheyne-Stokes breathing. Urine loaded with albumin.

May 20.—Dyspnœa during the night.

May 21.—Subcutaneous œdema developed posteriorly, extending to the angle of the scapula. During the twenty-four hours ending noon, May 22, patient passed 3,200 c. c. urine.



[United States Marine Hospital, port of San Francisco, Cal.; name, J. M.; age, 61 years; disease, Bright's disease, granular kidney.]

May 24.—Præcordial pain returned.

May 26.—A semblance of a friction rub was heard on inspiration near the junction of the left pericardium and pleura.

June 2.—Every third beat of heart was shorter and weaker, so that the impulse barely reached the radial arteries at the wrists.

June 3.—Every second beat of the heart was missed at the wrist, the pulse counting 45, practically one-half of the heart beats.

June 5.—Radial pulse reestablished.

June 18.—Urine, specific gravity, 1.018; albumin excessive.

July 5.—Patient on rising from bed, suddenly sank to the floor, and expired in a few minutes after being replaced in bed.

Treatment.—The patient was given strychnine sulphate, tincture of strophanthus, tincture of digitalis, nitroglycerin, caffeine citrate, with morphine and atropine hypodermically, with topical applications to painful areas, and abundant easily digested food.

Necropsy (*twenty-one hours after death*).—The body is that of a fairly developed, fairly nourished, elderly, white male. Rigor mortis present. Post-mortem lividity is well marked posteriorly. The tissues of the abdomen are slightly œdematous. There is a small amount of omental fat. The abdominal cavity contains a small amount of clear, serous fluid. The small intestines are empty, the large intestines are moderately distended with gas. In the right mammary line the liver extends three fingers' breadth below the costal margin. The left pleural cavity contains 475 c. c. of a clear, greenish-tinged, serous fluid. There are firm fibrous adhesions at the apex of the left lung. The right pleural cavity contains 1,400 c. c. of fluid similar to that of the left. At the apex of the right lung there are a few soft, easily broken adhesions. The pericardial sac is markedly distended; on opening it is found to contain no fluid. The visceral and parietal layers are everywhere adherent; for the most part they are readily separated, but over the left ventricle they are firm and apparently old. The right auricle is greatly distended by dark fluid blood, and mixed dark-red and chicken-fat clot. The right ventricle is empty. The left ventricle contains a small amount of fluid blood. Heart weighs 560 grams. From the left border of the left ventricle, somewhat posteriorly and superiorly, projects a rounded almost hemispherical eminence (aneurysm) about the size of a lemon; the posterior surface of the ventricle also shows evidences of thinning and dilation. The heart is markedly enlarged. The tricuspid valve segments are thickened, but show no evidences of calcareous deposits. The segments of the pulmonary semilunar valves are thickened, but without other marked change. The ascending aorta shows a number of atheromatous patches, the largest of which is about 0.33 cm. in diameter.

Atheromatous changes are especially marked around the sinus of val salva. The segments of the aortic valve are thickened and one contains a calcareous plate. The endocardium of the left ventricle between the auriculo-ventricular orifice and the aortic orifice shows evidences of atheroma. The aortic and mitral valves are apparently incompetent. The mitral valve segments are markedly thickened. The wall of the left ventricle, anteriorly, near the septum, is much hypertrophied and of firm consistence. In that portion of the left ventricle corresponding to the enlargement on the exterior is a firm, very adherent, laminated clot. On the removal of this clot the wall of the ventricle is found thinned, almost to the point of rupture. A section through the ventricle, in the thinned portion, shows evidences of marked fibroid change. The left lung weighs 610 grams. On the anterior surface, toward the apex, are fibrous adhesions, apparently newly formed. The lung crepitates throughout, and on section presents a fairly normal appearance. On slitting up the pulmonary artery small yellow patches are observed here and there. The lining mucous membrane of the bronchi shows evidences of chronic congestion. The right lung weighs 652 grams, is similar to the left, save that it is somewhat more congested and is compressed by pleural effusion. The bronchial glands are intensely black and somewhat enlarged, but there are no evidences of calcification. Spleen weighs 175 grams. The capsule is thickened and is mottled with greenish-white patches, which in some places present the appearance of depressed cicatrices. On section these are seen to extend into the spleen for 0.25 cm. On section the splenic substance is found firmer than normal. The blood vessels are atheromatous. The left supra-renal capsule is apparently normal. Left kidney weighs 168 grams. The external surface is rather irregular. The capsule strips off easily save in one or two places where there are evidences of old cicatrices. There are one or two cortical cysts. On section the kidney contains less blood than normal and is of firmer consistence. The cortex is somewhat diminished in thickness, and there is apparently a great increase in connective tissue. The pelvis of the kidney contains a small amount of yellow fat. The right supra-renal capsule is apparently normal. Right kidney weighs 117 grams; presents the same changes as the left, but in a less marked degree. Liver weighs 1,520 grams. The gall bladder is distended with bile and is adherent to the colon. The liver capsule is somewhat thickened; the surface roughened by nodular elevations, apparently liver lobules. On the lower surface of the left lobe are several linear cicatrices which on section seem to be entirely superficial. The liver substance is of a firm consistence. Brain weighs 1,590 grams. The cerebral arteries show atheromatous changes in degree not much more than normal for the age of the subject. The brain and membranes are otherwise normal.

T. B. P.
D. M.
J. M. G.

Microscopical examination.—Heart: Hardened in formalin and transverse sections cut from tissue corresponding to the most prominent area of the aneurismal bulging show that the heart substance averages about 1 mm. in thickness. The nuclei stain poorly, striation is indistinct, and there is evidence of fibroid change. Adherent to the endocardium is a partially organized clot. Liver: The changes are not marked, but indicate a chronic congestion, The section shows a small fibrous nodule about 2 mm. in diameter. Kidney: Moderate increase of the intertubular connective tissue.

D. M.

NEPHRITIS.

L. M., admitted to marine hospital, Baltimore, May 31, 1899, with chronic parenchymatous nephritis; died August 17, 1899; color, white; age, 48; occupation, sailor; single.

Family history.—Father died when quite young, cause unknown; mother died at age of 60 with consumption.

Personal history.—Was treated in this hospital six years ago for acute articular rheumatism, from which he entirely recovered; has been a hard drinker, drinking but little, however, during the last few months before admittance; last October contracted a cough, worse in the morning, and which gradually became more and more troublesome. This is all he noticed until six days before entering hospital, when he observed a swelling of his feet and legs; the swelling increased greatly Sunday and Monday, so much as to embarrass locomotion.

Physical examination.—Inspection: Some emaciation; ribs prominent and interspaces retracted. Percussion: Dullness in infra-clavicular region. Auscultation: Bronchial breathing over right apex; broncophony present. Heart: Apex beat to right of normal position; left ventricle hypertrophied and accentuation of second sound over pulmonary area; systolic murmer over apex; feet and legs considerably swollen and pit on pressure.

June 1, 1899.—Urine examination: Color, pale, sp. gr., 1,010; reaction, acid; considerable amount of albumin; no sugar; microscope shows urates in abundance, a few crystals of uric acid, and hyaline, granular and blood casts. Sputum examination: Streptococci and staphylococci present, but no tubercle bacilli.

During his stay in hospital had attacks of nausea and vomiting and diarrhea; and a disagreeable, uriniferous odor was emitted from his body and breath. Twenty-four hours before death dyspnœa set in, which became worse and worse, loud bubbling râles being heard all over the chest.

Necropsy (*seven hours after death*).—Body fairly well nourished. Rigor mortis marked. Post-mortem discoloration of back and buttocks. Spleen: Weight, 125 grams; normal. Left kidney: Weight, 115 grams; smaller than normal, yellow, and soft, capsule stripping easily; on section, surface is pale yellow; cortex slightly decreased in thickness; malphigian bodies not prominent; marked evidence of fatty change. Right kidney: Weight, 65 grams; very small; granular, capsule not stripping easily; pale yellow in color; consistency not greatly increased; on section, cortex diminished; general appearance same as in other kidney. Stomach: Dilated; pyloric end of about normal thickness; rugæ prominent and show grayish discoloration; cardiac end, wall thinned; mucous membrane smooth and shining, atrophied, and studded over with numerous petechial hemorrhages; no rugæ; pyloris patulous. Intestines show grayish pigmentation, otherwise normal. Vermiform appendix normal and contains some small, hard masses of feces. Liver: Weight, 1,510 grams; some adhesions to diaphragm; pale, anæmic, fatty; gall bladder distended. Bladder (urinary) small, contracted. Pericardium opened and found to contain normal amount of fluid. Heart: Weight, 455 grams; enlarged, and of a pale yellow color; valves normal, with slight amount of atheroma of aorta just above aortic valves; wall of left ventricle much thickened, and cavity filled with post-mortem and ante-mortem clots; right and left auricles dilated, the latter very markedly so; all the cavities filled with clots, which extend up some distance into the great vessels. Right lung: Weight, 1,035 grams; adhesions between pleura and ribs at apex and posteriorly; lower lobe dark red in color and increased in consistency; on section, airless, contains fibrinous exudation, and sinks in water; upper lobes contain air. Left lung:

Weight, 630 grams; adhesions between pleura and ribs and pleura and pericardium; on section, a frothy, bloody serum exudes. Brain: Weight, 1,450 grams; normal. Spinal cord not examined. General arterio-sclerosis not marked.
C. F.
G. P.

BRIGHT'S DISEASE.

J. M.; age, 32; nativity, United States; admitted to the United States Marine Hospital, port of New York, July 1, 1899; died July 8, 1899.

Family history.—Negative.

Previous history.—Had syphilis in 1884. Alcoholic.

Present history.—Dates back two months. Complains of headache spots before eyes. Dispnœa on exertion. Pains in lumbar region. Poor appetite, œdema of legs. Bowels costive, tongue dry and coated.

Physical examination.—Pupils react slowly to light and accommodation. He is prematurely aged. Slight puffiness under eyelids. Coarse tremor of lips and finger tips. Respirations labored. Carotid pulsations evident. Palpation: Fremitus marked over both sides of chest. Liver felt below ribs. Percussion: Area of hepatic dullness enlarged downward. Auscultation: Respiratory sounds markedly exaggerated. Aortic sounds and second mitral sounds loud and accentuated. Quantity of urine small, high specific gravity, and contains a large amount of albumen.

Treatment.—Magnesia sulph., 20 grams, and repeat in four hours; milk diet.

July 2.—Vomited during night, bowels moved freely. Pulse high tensioned, 96; temperature, 37.8; given hot pack, and pilocarpine 0.01 t. i. d.; magnesia sulph., 20, t. i. d.

July 3.—Sweat profusely in and after packs; bowels moved freely during the day; had severe chill at 4 a. m.; temperature after chill, 39.6; pulse, 140. Respirations markedly dyspnœic. Patient was markedly stuporous, on admission becoming semicomotose. Prescribed oleum tiglii this morning, 2 drops. Pulse high tensioned.

July 3, p. m.—Became unconscious after morning round, but regained consciousness somewhat toward evening. Bowels active, sweats profusely after packs.

July 4.—Condition somewhat improved. Takes some nourishment. Temperature began to drop at 2 p. m. yesterday. This morning it is 36.4. Pulse, 90; respiration, 16. Respiration still dyspnœic. Conscious this morning. Passes between 200 and 300 c. c. daily. Packs and cathartics continued, and also prescribed potassa citrate, bitart, and acetate, each 1. t. i. d.

July 5.—Not improved, is semicomatose; still passing small quantity of urine, but bowels and skin are active. Has acute pharygnitis. Astringents prescribed for throat. Temperature, 37.2; pulse, 100, and high tensioned.

July 6.—Unimproved. Kidneys inactive, skin and bowels active. Prescribed nitroglycerin 0.001 every two hours.

July 7.—Temperature remains within degree of normal. Pulse, 100, and still high tensioned. Pupils contracted, breathing labored, is partly unconscious.

July 8.—Began to fail during night. Respirations became rapid and shallow. Pulse rapid and feeble. Has considerable pulmonary œdema, and despite constant stimulation he continued to fail, and died at 3.30 a. m.

Necropsy.—Body of male, about 35 years of age. Pupils moderately dilated. No marks of violence, posterior suggilations faint. Rigor mortis marked. Pericardium normal. Pericardial fluid slightly increased. Heart normal position, large. Left ventricle hard and resisting, walls hypertrophied; muscle normal; right ventricle soft. Antemortem clot in left ventricle, slightly adherent. Mitral valve thickened at edges. Aortic valve normal. Right ventricle dilated, walls fatty, especially on outer surface. The right auricle has a large antemortem clot which extends into the right ventricle. Tricuspid valve has large deposits on the edge of its cusps. Left pleura smooth, shining, no adhesions; fluid normal in amount. Left lung weighs 735. Markedly pigmented on external surface. Crepitates, floats, has slight band of adhesions between lobes. Markedly œdematous, especially in posterior lobes. Cut sections have profuse serous exudation. Lung congested. Right lung weighs 925. Has about the same gross pathological findings as the left lung. Anterior mediastinum, negative. Peritoneum smooth and glistening throughout. Left kidney: Capsule nonadherent, weight 197. Demarcations not distinct. Cortical areas fatty in appearance, cuts hard. Right kidney weighs 172. Capsule nonadherent, firm and resisting on section; demarcations not distinct. Cortical areas fatty. Spleen small, weighs 90, normal consistency. Pancreas normal. Liver: Recent formed lymph between diaphragm and upper surface, weight 1,795. Slightly fatty, hard in areas, æmenic, particularly in left lobe. Stomach normal. Large intestine normal. Small intestines normal. Rectum normal. Testicle atrophied. Penis shows chancral scars on gland, otherwise negative. Prostate enlarged, seminal vesicles negative. Bladder negative. Great vessels of chest and abdomen negative. Brain: Brain case, sinuses, and membranes negative. Considerable amount of cerebro-spinal fluid. Brain weighs 1,395. Cut section, negative.

J. M. K.
G. W. L.

Valvular disease of heart, aortic and mitral, and prolapsus of rectum.

M. L.; age 63 years; nativity, Ireland; admitted to the United States Marine-Hospital, port of New York, N. Y., July 8, 1890; died July 26, 1899.

History.—Was previously under treatment in this hospital from July 7, 1890, for rheumatism. Readmitted July 8, 1890, for prolapsus of rectum, which had been present for three years previous to admission. Condition started with hemorrhoids, which were operated upon. Prolapsus continued after operation. When admitted, the rectum came down with each stool, or when straining. Extent of prolapsus about 5 inches.

Treatment.—Cathartic to keep bowels active.

September 12, 1890.—Etherized. Portions of mucous membrane and submucous tissue excised and edges united by catgut sutures. Operation not successful—patient did not take ether well. Bowels kept confined after operation by administration of morphine.

October 8, 1890.—Second operation under ether anæsthesia, longitudinal cauterization of rectum. Bowels were kept confined after operation by morphine for several days, and then they were opened by cathartics.

November 9, 1890.—Operation of October 8 unsuccessful. Complains of pain in left shoulder. Liniment chloroform ordered rubbed to shoulder.

June 2, 1891.—Pain in back; belladonna plaster ordered.

July 1, 1895.—History shows that no material change has taken place during the past four years. Prolapsus continued and the pain in shoulder persisted, the two conditions being aggravated at times. Given an enema about every second day, or a cathartic, usually cascara sagrada or compound licorice powder.

July 27, 1895.—Feet swollen. Urinates frequently, passing small quantities at a time. Treatment: Tr. digitalis, 10 drops t. i. d., p. c.

August 14, 1895.—Pain in both legs; feet still swollen.

December 1, 1895.—Legs considerably swollen. Patient has to urinate four or five times during the night. Infusion digitalis instead of tincture prescribed.

January, 1896.—Strychnine sulph., 0.001 t. i. d., ordered.

January 23, 1896.—Not very well. Not urinating much. Complains of pains in penis and vesical tenesmus. ℞ Liquor potassi, 10; tr. hyoscaymii, 15; sp. niter, q. s. ad., 175; sig., 4 c. c. every two or three hours.

January 26, 1896.—Some better. Bladder irrigated with Thierch's solution. No stricture. Prostate enlarged.

March 20, 1896.—Passes larger quantity of urine.

March 26, 1896.—Legs not so swollen.

April 26, 1896.—Medication stopped.

May 19, 1896.—℞ Gum opii, 0.06; camphor, 0.02; fiat suppository, 1; place one in rectum every night.

June, 1896.—Quinine sulph., 0.3 t. i. d., for three days.

July 23, 1896.—Urine scanty—no albumen or sugar.

July 26, 1896.—Had chill, followed by fever. ℞ Quinine sulph., 0.3 t. i. d.

July 31, 1896.—Doing well; stop quinine.

March, 1898.—General condition unchanged since last note. Prolapsus still present and troublesome at times, causing some tormina and some tenesmus; has a left inguinal hernia of four years' duration, and for the last thirty-four years has thickening and deformity of left ankle. Has a good appetite. Rests well at night, and is in fair general condition, considering his age.

July 31, 1898.—Right pupil larger than left; neither responds to light. Had chill, followed by sweats. Complains of pain in legs. Given quinine, 0.6 t. i. d., and phenacetin, 0.3 t. i. d.

August 10.—Patient doing well.

April, 1899.—Has been complaining of shooting pains in the legs, for which different anodynes had been prescribed with varying success. Has slight quantity of albumen in urine.

April 26, 1899.—Pulse 40 per minute, pulsations evident in neck, epigastrium, and throughout vascular system. Pupils contracted. Memory poor. Wanders around ground in aimless fashion; is demented.

July, 1899.—General condition gradually growing worse, being bedridden at present; is very weak and feeble. Dementia becoming more marked. Still complains of pains in legs. Prolapsus troublesome at times. Urinates about 1,400 c. c. daily. Bowels regular.

July 24, 1899.—Is very weak. Pulse rapid and feeble. Respirations rapid and shallow. Has pulmonary œdema. Apex beat diffused and displaced to left. Liver enlarged. Given stimulation, but he rapidly grew worse and died at 10 p. m. July 27, 1899.

Necropsy (18 hours after death).—Body of male apparently about 70 years of age. Muscles flabby. No marks of external violence. Slight suggilations on posterior portions of body. Rigor mortis fairly well developed. Eyes glazed, pupils moderately dilated. Brain case normal in size and appearance. Skull cap normal, sinuses and membrane congested. Considerable serous fluid escaped on opening membrane. Blood vessels of brain atheromatous throughout. Brain tissue softer than normal. Anterior mediastinum negative. Heart large, soft, displaced to left about 1 inch, arrested in diastole; weight 625 grams; auricles and ventricles filled by chicken-fat clot; aortic orifice admits of two fingers, and the aortic valves are calcareous and incompetent; mitral orifice admits four fingers and its valves are covered with calcareous deposits and are incompetent. Pericardium dull and glistening on internal surface; contains about 75 c. c. of a pale straw-colored fluid. It is adherent to the anterior and posterior surfaces of the left ventricle and to the apex; it is displaced to the left; the right pleura adherent throughout; the left pleura has numerous strong adhesions to upper lobe of lung; has no fluid, and is smooth and glistening on free surfaces. Right lung weighs 1,100 grams, floats, crepitates, and external surfaces markedly pigmented; cut sections have considerable serous exudate; congested. Left lung weighs 535 grams, floats, crepitates, and external surfaces are pigmented; upper lobe anæmic; lower lobe œdemateous; great vessels of the thorax are lined with calcareous deposits. Nerve trunks apparently normal. Diaphragm adherent on upper surface to pleuræ and lower surface adherent to liver and spleen. Omentum negative. Spleen: Weight 160 grams; brownish red in color, is adherent to diaphragm, of a soft, mushy consistency, breaking down easily. Left kidney: Weight 190 grams, normal position, capsule nonadherent, markings indistinct; cortex and pyramids are markedly fatty and granular. Cyst found in the center of the organ, about lower third. Pelvis thickened and contains some purulent urine. The right kidney normal position, small, weighs 100 grams, capsule adherent, markings almost obliterated. Cortex and medulla show marked granulo-fatty changes. Pelvis thickened and congested and contains some urine and pus. Suprarenal capsules both negative. Urinary bladder walls thickened, mucous membrane studded with small ulcerations, congested and roughened. Prostate large and thickened, cuts hard; seminal vesicles negative, testicles atrophied, penis negative, urethra negative, rectum normal, duodenum normal, stomach normal, gall ducts, patent liver, weight, 1,400 grams, soft, breaks down easily; right lobe markedly fatty, adherent by upper surface to diaphragm Pancreas negative. Solar plexus not examined. Mesentery normal. Small intestines normal. Large intestines normal. Great vessels, abdominal aorta and its branches, show on intima numerous calcareous deposits.

J. M. K.
G. W. S.

CHRONIC PARENCHYMATOUS NEPHRITIS.

Uræmia.

M. McA.; aged 47 years; nativity, Rhode Island; admitted to United States Marine Hospital, Stapleton, Staten Island, June 27, 1900, and died June 30, 1900.

Family history.—Parents died of old age. Does not know cause of his brother's death.

Previous history.—Had an attack similar to the present one four years ago, when he was in this hospital for four months. Otherwise has been well all his life, except for an occasional cold. Has been a drinker, but not to excess, he says.

Present illness came on suddenly about two weeks ago. He became short of breath, had headache, ankles and legs swelled, and his stomach was out of order. On admission: Dyspnœa is extreme; legs enormously swollen; tongue moist and white; expression anxious; pulse is full and intermits every fifth to tenth beat; heart sounds obscured by thick chest wall, but no murmur heard. Action of heart, bounding; second aortic sound exaggerated.

June 28.—Dyspnœa continues, but is not quite so bad. Has dry râles throughout chest. Given nitroglycerin, 0.001, every hour. ℞ Norwood's tinct. verat. virid. gtt. every three hours.

Six p. m.—Condition unimproved, dyspnœa continues. Was given pilocarpine, 0.01, hypodermatically two hours ago, and skin is just moist. Has passed only about an ounce of urine to-day; this was highly albuminous.

June 29.—Dyspnœa not so extreme. Pulse is not so hard. Sleeps this a. m., but can be roused and talks rationally. Give enema of magn. sulph. solution, 2 oz. to 8 oz. aqua. Give hot packs every two hours. Stop verat. viridi, and nitroglycerin. ℞ Potass. citr., 10, potass. acetas, 10. Aquae ad. q. s. 100. Signa 10 c. c. every three hours. Precede each hot pack by pilocarpine, 0.01, hypodermatically.

June 30.—Dyspnœa not so marked. Slightly delirious. Did not sweat much after pack. Dose of pilocarpine doubled during the night. Bowels inactive. Has not passed any urine during the past twenty-four hours. Very restless. Slight perspiration this a. m. Dry cup over both kidneys. Stop solution potass. acet. and citr. Give mag. sulph., 10, every hour.

P. m.—General condition rapidly became worse; coma gradually grew deeper; dyspnœa and cyanosis more marked; kidneys failed to act, and he died at 11.30 p. m.

Necropsy fifteen hours after death.—Body that of a male; aged about 40 years; large amount of subcutaneous tissue; rigor mortis well developed; slight suggillations on under portions of body; small ulcer over anterior surface of tibia of right leg; subcutaneous tissues anæmic and edematous. Pericardium: Normal position; smooth, glistening interior surface, cavity containing about 75 c. c. of turbid yellow serum. Heart (opened in situ): Right ventricle contains fluid blood; left ventricle arrested in systole and contains post-mortem clot; right auricle contains a large amount of post-mortem clot, extending into venæ cavæ, and into ventricle and plumonary arteries; aorta contains "chicken fat" clot. Heart weighs 600 grams. Valves competent according to hydrostatic test. Light calcareous deposits on free margins of the aortic valves. Aorta contains patches of sclerosis. Mitral orifice admits three fingers easily; valve flaps contain calcareous deposits. Tricuspid orifice completely closed, flaps of valves containing no deposits. Coronary arteries patent. Myocardium of left ventricle slightly hypertrophied; right, normal. Left pleura shows adhesions to lung; cavity contained 500 c. c. of turbid yellow fluid. Right pleural cavity contained about 500 c. c. of turbid serum; no adhesions to lung. Left lung: Weight, 675 grams; floats; crepitates; external surface pigmented; on section, marked serous exudate in both lobes. Right lung: Similar to left; exudate more marked. Omentum, fatty. Spleen: Normal in position, size, and consistency; capsule nonadherent; splenic pulp normal, but slightly congested; weight, 125 grams. Left kidney: Surrounded by a large amount of fat; weight, 250 grams; about middle of extenal border is a cyst the size of an English walnut, containing a brownish fluid; external surface nodular in appearance; feels and cuts hard. Cut surface: Markings almost obliterated. Cortex and medulla present a rough granulo-fatty appearance. Capsule nonadherent. Right kidney: Directly below the diaphragm and behind the liver; capsule nonadherent; cuts hard; markings very indistinct; granulo-fatty appearance of cut surface. Supra renals and ureters normal. Bladder empty; mucous membrane negative. Urethra and testicles are normal. Pancreas: Weight, 138 grams; pyloric end enlarged and hard. Liver: Weight, 2,320 grams; extended about 3 inches below the ribs; cuts easily; evidence of marked fatty degeneration in yellowish cut section. Gall bladder contains bile; duct patent. Stomach and intestines apparently normal. Calvarium not removed.

J. M. K.
G. W. S.

Bright's disease; abscess brain.

CHRONIC NEPHRITIS.

J. D. M.; age, 30; nativity, Maine; admitted to United States marine hospital, Chicago, Ill., July 20, 1899; died March 27, 1900.

History.—July 1, 1899, patient states that he first noticed his feet began to swell, and in a few days' time the swelling involved the legs. He passed very little urine during this period. Examination July 21, 1899, showed the patient to be suffering from general anasarca, dyspnœa, and anæmia. The genitals were markedly œdematous.

January 1, 1900.—The abdomen is greatly distended with fluid, and lower extremities swollen.

January 20.—Seven hundred and fifty c. c. of fluid removed by aspiration from peritoneal cavity, with great relief to the labored respiration.

January 22.—Patient suddenly collapsed, and remained unconscious for several minutes, but was relieved by inversion of the body.

January 23.—The rapid reaccumulation of fluid in the peritoneal cavity necessitated reaspiration and 1,500 c. c. of fluid were accordingly removed.

January 31.—Patient suddenly collapsed, remained unconscious for ten minutes, but revived upon inverting him.

February 1.—Two thousand c. c. of fluid removed from the peritoneal cavity by trocar.

February 4.—Two thousand five hundred c. c. of fluid removed. The general œdema improves but little, but the aspiration renders the patient very comfortable.

February 13.—Three thousand c. c. of fluid withdrawn, relieving the distressing breathing. The amount of urine excreted was increased after tapping.

February 18.—Four thousand c. c. of fluid removed by tapping the abdomen.

February 19.—Suffers a great deal from headache. Œdema of the extremities diminishing.

March 8.—A very annoying dermatitis about the anus is kept up by persistent diarrhea.

March 19.—Diarrhea continues; small ulcer on the scrotum. Irrigation of the colon with hot salt solution gave some relief.

March 25.—During the past three weeks the patient has frequently had fainting spells, especially during the night, which were relieved by inverting the body.

March 27.—For the past three days has been delirious most of the time.

Necropsy (*twenty hours after death*).—Body that of a white male, 1.70 meters in height, skin about the anus and on the scrotum excoriated. Rigor mortis slight. Heart normal, weight 230 grams; aorta and vena-cavæ normal. Right lung: Weight, 710 grams; apex consolidated, connective tissue increased; pleura thickened. Left lung: Weight, 790 grams; apex in a similar condition to the right. Liver appeared to be in a normal condition; weight, 1,390 grams. Gall bladder and pancreas normal in appearance. Spleen, pale and firm; weight, 370 grams. Stomach and intestines normal except a few small follicular ulcers in the lower portion of the rectum. Right kidney large, pale, and fatty; capsule peels easily; weight, 280 grams. Left kidney in the same condition as the right; weight, 280 grams. Suprarenal capsules normal. Bladder, ureters, prostate, urethra and seminal vesicles normal in appearance. Brain: Weight, 1,430 grams; membranes normal save for a small area of thickening over the ascending frontal convolution near the great longitudinal fissure, just beneath the cortex of which was a small circumscribed abscess about the size of a filbert.

M. K. G.
H. W. S.

General anasarca, ulceration of large intestine.

P. McC., age, 44 years; nativity, Scotland; admitted to the United States Marine Hospital, Chicago, Ill., July 5, 1899, discharged September 13, 1899; result, improved; readmitted October 4, 1899, and died December 25, 1899.

History.—In March, 1899, he first noticed some slight swelling about the extremities, which lasted a few days. Three months later the swelling returned. His abdomen was swollen, and there was serious diarrhea present. He complained of shortness of breath upon exertion and passed his urine frequently during the night. Under treatment the œdema of the legs disappeared and the ascites was reduced. His general condition being so much improved he left the hospital and went home for three weeks, when the return of his anasarca and dyspnœa forced him to return to the hospital. He was extremely debilitated upon admission and failed to respond to any form of treatment.

Necropsy (*one hour after death*).—Body very much emaciated. Rigor mortis just beginning in the muscles of the jaws. During the course of the necropsy it developed in the lower extremities, then in the upper extremities and trunk. Very little post-mortem lividity present. The thoracic and abdominal cavities were filled with fluid. The heart weighed, after opening, 210 grams; valves normal; ventricular walls thin, and the muscle pale. The right lung weighed 290 grams. It was compressed by a considerable amount of effusion into the pleural cavity to about the size of two fists. Fibrinous bands bridged across the intervening space. The left lung weighed 340 grams. There was only a little fluid in the right pleural cavity. The spleen was congested. It weighed 290 grams. The capsule was thickened. Some adhesion had to be broken up before it could be removed. The liver weighed 1,550 grams. It had a peculiar lobulated form, and was in a state of chronic congestion—"nutmeg liver." The kidneys weighed 265 grams each. They were swollen and fatty. The capsules peeled off easily. The intestines were stained throughout a dark red color. Especially marked in the large intestine were grayish patches which could be brushed off with the finger, leaving a pale surface beneath. The brain appeared to be normal. Nothing abnormal was noticed about the great vessels and nerve trunks.

M. K. G.
H. W. S.

J. B.; aged 53 years; nativity, Cape Breton; admitted to United States Marine-Hospital, Boston, Mass., July 24; died September 3, 1899.

History.—Occupation that of a fisherman. Family history, good. Used tobacco moderately, but alcohol to excess. Denied venereal history, except one case of gonorrhœa twenty-five years previously. Had had typhoid fever twenty-five years before and with that exception had been quite healthy up to five weeks before date of admission. On admission patient was quite weak. Stated that for five weeks he had suffered with shortness of breath and palpitation of heart on exertion. Had had to urinate five or six times every night. Micturition was painful. Had no cough and had never suffered with œdema of ankles. Bowels were costive; temperature, normal; pulse, slow and of high tension. Inspection showed arcus senilis around cornea. Palpation showed radial and temporal arteries to be atheromatous. Auscultation of heart revealed a slight systolic murmur at apex. Urinalysis showed albumen to be present in large quantity and numerous hyaline and granular casts. Patient was put upon a treatment of Basham's mixture, strophanthus, glonoin, saline purgatives, hot baths, and milk diet. He complained of severe cramps in the calves of his legs at night. Suffered occasionally with vomiting, dizziness, headache, twitching, and other uremic symptoms. Occasionally hypodermic injections of pylocarpine hydrochlorate were used. On August 16 patient had an attack of œdema of lungs and glottis which was relieved by a hypodermatic injection of atropine sulphate. From this time until death he became gradually weaker, exhibiting symptoms of uræmia, vomiting and refusing nourishment. The uræmic odor was quite marked. His urine had to be drawn for three days before death and contained pus and blood. He did not become comatose, but suffered greatly with dyspnœa and pulse gradually became lessened. He died at 5 o'clock a. m.

Necropsy (nine hours and a half after death).—External appearances: Body fairly well nourished; rigor mortis marked; pupils equally dilated; arcus senilis around cornea. Weight of heart after opening, 580 grams; left ventricle enormously hypertrophied, its wall being 5 cm. in thickness; right ventricle dilated and full of blood; left auricle contained a black and yellow clot; right auricle contained a yellow clot; valves were all normal except aortic, which displayed a slight calcareous thickening; the coronary vessels were much dilated. The abdominal aorta was atheromatous and exhibited calcareous deposits, as was the case with the radial and temporal arteries. Pleural cavities and membranes appeared normal. The left lung weighed 670, the right 860 grams. Both were œdematous and slightly congested in lower lobe. The abdominal contents were in normal position. Weight of liver, 1,535 grams. Gall bladder was full of bile; its duct was pervious. Both kidneys were surrounded by a large amount of adipose tissue. The left weighed 80, the right 120 grams. Both were contracted, their capsules adherent and thickened, and their cortical portion much diminished. Supra-renal capsules were normal. Bladder was very small, contracted, and thickened. It contained about 50 c. c. of urine. Its inner surface was congested. Prostate gland enlarged, and that portion of urethral lumen very small. Weight of pancreas, 100 grams; weight of spleen, 113 grams. Weight of brain, 1,140 grams; it and its membranes appeared normal.

J. B. G.

BRIGHT'S DISEASE.

C. M.; age 38 years; native of the United States; admitted to marine hospital, Mobile, Ala., November 14, 1899; died November 18, 1899.

When admitted man complained of excruciating pain in abdomen, especially localized in region of liver; patient stated that he had been sick about six weeks, but not confined to his bed all the time; patient somewhat emaciated and has appearance of a very sick man. Physical appearance that of a man 45 years old; says he never had syphilis, but his blood vessels were atheromatous, the radial and temporal arteries standing out like whipcords; area of hepatic dullness extends over entire right side of abdomen from ribs to ilium and as far down as umbilicus, on left side; liver easily palpable, but very tender; considerable vomiting; bowles open, but no diarrhea; tongue coated slightly, and mouth and throat very dry. Died November 18, 1899.

Necropsy (five hours after death).—Body that of a medium-sized colored male. Abdomen considerably swollen. No scars can be detected on penis. Cicatrices are present on anterior surface of both legs over tibiæ. Rigor mortis slight. No ecchymoses. Body somewhat emaciated. On opening abdominal cavity considerable sero-pus escapes. Heart weighed 390 grams. Walls of both ventricles thickend and hard. Valves competent. Aortic valves show slight atheromatous changes. Pericardial sac adherent and contained about 10 c. c. of fluid. Larynx and trachea congested. Left lung weighed 330 grams, somewhat conjested, especially in posterior inferior portion. Right lung weighed 440 grams; right lung œdematous; bloody froth escaped from cut surface and from bronchi. Œsophagus contained small quantity of light-brownish matter. The aorta narrow, walls thick and calcareous in places, concontained only fluid blood. The vena-cava has similar contents.

Abdomen: Spleen weighs 60 grams; is small, congested, and hard; has appearance of sago spleen. Left kidney weighs 190 grams; is hard, granular, and full of small cysts, at least half dozen being found, from size of pea to that of a filbert. Right kidney weighs 105 grams; is hard, granular; no cysts in this kidney. Both kidneys were fibroid, exceedingly granular, and very tough; capsules adherent, and can not be peeled at all; the line of cortical and medullary substance almost entirely obliterated in both organs. The suprarenals on both sides are small and firm. The stomach is contracted, intensely congested, hardened, and inelastic; the gastric mucous membrane is elevated, stained a dirty yellowish brown and ulcerated in places, and in other places granular. The small intestine is contracted almost throughout its extent; the large veins on external aspect appear very full. The mesenteric glands are somewhat enlarged and hard. The liver weighs 2,600 grams, and is literally full of abscesses, 11 distinct abscesses being found, besides several communicating with each other, which were counted as one. The size of the abscess is from that of an orange—four of this size being found—to that of a walnut. No part of the liver substance has escaped, the majority, of course, being in the right lobe. The brain weighs 1,290 grams; the membranes are intensely congested, and a slight exudation has taken place in spots; a small hemorrhage has occurred over the left frontal lobe, at which point a small clot is located. This appears to be of recent origin.

This case is a truly remarkable example of the tolerance exhibited by the system to what is ordinarily a totally disabling and rapidly fatal disease. This man, while complaining for six weeks, had not been confined to his bed for more than four days, which was the length of time in hospital, and even during this time he would get up against orders and walk around the wards. There were none of the usual symptoms of liver abscess, such as dysentery or diarrhea, chills or fever, or such signs as attend pus formation usually. Careful microscopic examination of the secretions and of the pus revealed no other organism but the stophylococcus pyogenes.

W. P. McI.

Chronic nephritis.

P. F. (colored); seaman; age, 41 years; nativity, Virginia; admitted to United States Marine Hospital, Cincinnati, Ohio, July 17, 1899; died July 29, 1899.

History.—Patient was brought into this hospital in a semicomatose condition. Examination revealed general anasarca, dyspnœa marked. Heart weak, rapid, increased area of cardiac dullness. Urine, specific gravity, 1.010; scanty in amount; small amount of albumen, with dark granular casts. Patient improved for short time under hot baths, cathartics, and tapping, then all symptoms increased. Uræmia, almost complete anuria, resulting finally in death.

Necropsy (ten hours after death).—General anasarca present. Rigor mortis present. Brain: Dura slightly adherent to skull, vessels of pia deeply injected, arachnoid spaces filled with fluid, base of organ somewhat softened and degenerated, weight 1,140 grams. Thorax: Pleura on right side adherent throughout, pleural cavities filled with serum. Right lung congested throughout, weight 780 grams. Left lung small, weight 330 grams. Pericardium contained about 200 c. c. of fluid. Heart: Hypertrophy of left ventricle; valves competent, normal; weight 375 grams. Abdomen contained large quantity of ascitic fluid. Liver: Capsule thickened and adherent; hypertrophic cirrhosis present; weight 2,040 grams. Spleen: Soft, pulpy; weight 720 grams. Kidneys: Left, weight 270 grams; right, weight 240 grams. Each organ was large and white in appearance; capsule adherent but thin; presented all the appearance of the large white kidney. Bladder: Empty.

H. S.
J. W. S.

Organic stricture of urethra; abscess of kidney.

J. M. E.; age, 38; nativity, Virginia; admitted to marine ward, St. Vincent's Hospital, Norfolk, Va., June 30, 1899; died July 10.

The patient was admitted suffering severely with symptoms of urethral stricture. The urine was voided frequently and with much difficulty. There was much pain and the patient had moderate fever. Kidney disease was suspected, but the urine was so loaded with pus and mucus as to obscure the examination. The quantity of urine was abundant. As there was danger of retention of urine, and in the hope of relieving the distress, an operation was decided upon. There were two strictures, one, near the bladder, being very narrow. Forcible dilatation with sounds was done under ether July 3, but the patient was not relieved, and on July 7 a primal section was done. The patient was much exhausted after the second operation and went down steadily, dying two days and a half afterwards.

Necropsy (*sixteen hours after death*).—Body poorly nourished. Slight post-mortem lividity, giving a mottled appearance to dependent parts. Moderate rigor mortis. Pupils natural. Tongue behind teeth. Jaws not entirely closed and eyes half open. Stains of dried blood on the pubes and the end of the penis. Fresh operation wound in the perineum, penetrating the urethra. Body opened by incision from neck to pubes. Peritoneum glistening and greenish. Great omentum covered viscera nearly to the lowest level of the abdomen. There was no serum in the abdominal cavity and there were no adhesions. The appendices epiploicæ were conspicuous, but contained little fat. The lungs collapsed when the thorax was opened. Their surfaces were gray, with lobules marked off by dark lines. The left lung was adherent to the diaphragm and the front of the chest. The right lung was adherent to the side of the chest. There was no serum in the pericardial sac. The blood vessels of the heart were plainly marked, but not turpid. Considerable fat on surface of heart along right and left borders. White fibrous patch, 2 cm. in diameter, on front surface at apex. The valves were healthy in appearance throughout. The dependent portions of the lungs were very full of dark blood. The spleen was small, but normal. The gall bladder was empty and collapsed. The liver was of ordinary size. The stomach and duodenum contained about 250 c. c. of greenish-yellow, pasty liquid. The appearance of the mucous membrane of the gastrointestinal tract was normal throughout. The appendix was long and narrow and folded behind the cæcum. The areolar tissue surrounding the bladder, ureters, and kidneys was spongy and filled with dark blood, particularly about the right ureter and kidney. The right kidney was very small and flabby and dark in color. The normal kidney tissue was obliterated and its place taken by numerous small abscesses and dark, spongy-looking trabeculæ. At the lower extremity was a large yellow infaret surrounded with pus. The right ureter was filled with pus and dilated. The left kidney was enormously enlarged and light colored and mottled externally. The capsule could be stripped. The cortex was extremely pale and soft and marked with dark red streaks. The pyramids were very dark in color. The bladder contained purulent urine. There were three small patches of extravasated blood in the mucous membrane of the floor, and granular deposits could be felt in the mucous membrane, especially near the neck of the bladder. The urethra admitted a large-sized sound. The great blood vessels of thorax and abdomen presented nothing abnormal. The cranium was not opened.

A. C. S.

Cirrhosis of liver.

A. C. (negro); age, 59; nativity, Maryland; admitted to United States Marine Hospital at New Orleans, La., October 12, 1899; died October 18, 1899.

History.—On admission complained of being stiff and weak, frequent and copious urination and defecation; face puffed; ascites and œdema of both legs; urine shows large quantity of albumen. Physical examination showed apex beat at point of nipple; slight murmur, apparently aortic regurgitant. Anus concealed by large condylomatous masses honeycombed with fistulæ and large pockets of pus. This condition had been going on eighteen years. Received Basham's mixture and an occasional capsule of Dover's powder. Rectum dressed locally.

October 16.—Dropsy improved; apex beat had descended 1½ inches; murmur indistinct; glands of both groins greatly swollen; pus sinuses from rectum involve scrotum; general condition better.

October 18.—Was found by night nurse lying on floor about 5 a. m.; was unconscious; respiration and pulse fair, but rapidly sank; died at 9.45 a. m. On evening previous to death stated that he felt very good; no pain, fever, or any restlessness.

Necropsy (*nine hours after death*).—Body of negro, emaciated somewhat; rigor mortis well marked. Abdomen, scrotum, penis, and lower limbs swollen and œdematous. Limbs wrinkled from partial subsidence of swelling. Cranial cavity: Calvarium removed. Meninges firmly adherent to brain for a distance of 2 inches along the longitudinal fissure at vertex. About 50 c. c. of light-yellow serous fluid escaped from beneath membranes. Very little blood in vessels. Brain soft. Thoracic cavity: Pleuræ each contained about .600 c. c. of fluid. No adhesions; appeared normal. Lungs: Tubercular nodules at apex of each lung; more numerous on right side. Larger nodules beginning to soften. Heart about normal size, but left ventricle hypertrophied at the expense of its cavity, which was about one-half normal size. Very little blood in any of blood vessels throughout entire body. Pericardium normal.

Bronchial glands enlarged. Abdominal cavity: Contained about 2,500 c. c. of fluid. Omentum adhered to abdominal wall and liver. Glands of omentum and mesentery enlarged, some measuring 5 cm. in diameter. Contents of entire abdominal cavity more or less stuck together by inflammatory adhesions, some of which were recent and easily broken, others, especially above liver, requiring great force. Liver slightly smaller than normal, covered by adhesions and firmly bound to diaphragm, stomach, and duodenum. Substance appeared paler than usual, containing very little blood. Gall bladder normal, containing clear serum, with no trace of bile. Ducts normal. Stomach normal in size and thickness. Mucous membrane pale, showing red, and injected on edges of rugæ. Pylorics contracted, but not inflammatory. Spleen and pancreas normal, but firmly adherent to each other and to stomach. Duodenum and intestines normal. Folds stuck together by thin and easily broken bands. Appendix normal, lying behind cæcum. These adhesions in abdomen were not white and flaky, as in acute peritonitis, but transparent. No pus in cavity. Kidneys about normal in size; capsule thickened, easily stripped off except in two places; stellate veins plainly marked, especially on right kidney. On section, kidneys were pale; pyramids plainly seen. One or two yellowish-white spots could be faintly seen in each kidney. Supra-renal capsules normal. Ureters, bladder, and generative organs normal except for œdema of prepuce. Scrotum œdematous; pus sinus connecting with rectum. Rectum ended in a mass of condylomatous swellings and pus cavities. No sphincter could be found. Feces passed through eight or ten openings. Solar plexus, great vessels, and nerves of abdomen normal.

Lymphatic glands of both groins and some abdominal glands contained pus.

W. W. K.

GRANULAR KIDNEY.

W. S.; age 66 years; nativity, England; admitted to United States Marine Hospital, Portland, Me., June 13, 1899; died April 5, 1900.

History.—On admission there was general anasarca, which had started while on his vessel a month previously. No similar attack before. Orthopucœa on admission. Delirious at night. Urine, specific gravity 1,022, hazy, straw color, acid, albumen 15 per cent by volume, sediment scanty. Frequent examination showed an abundance of casts, some epithelium and leucocytes. His general condition improved greatly and œdema and ascites disappeared and did not return so long as urine was kept up to sufficient quantity, but with any serious diminution symptoms returned. The liver could be felt enlarged. The heart was hypertrophied, apex beat in sixth interspace outside of vertical line of left nipple. Heart's action was usually regular and of good strength. In March, 1900, the action of heart became irregular, often tumultuous; dyspnœa increased.

March 19.—Slight hemoptysis. At this period the urine was quite clear, pale, and it was difficult to find casts.

Necropsy (four hours after death).—No rigor mortis. Slight lividity posteriorly. Considerable serum lost in opening skull. Brain normal, except free serum in all cavities. Weight, 1,470 grams; 550 c. c. serum in abdomen; 1,100 c. c. serum in right pleura; 700 c. c. in left. Omentum normal. Spleen deep purple with bluish-white streaks externally, almost black on section, moderately dense tissue; weight, 270 grams. Liver large; capsule thick, whitish surface, not nodular, rather granular; color brown to slate, on section lobular configuration scarcely visible, tissue rather gristly; weight, 1,400 grams. Right kidney, whitish thickened capsule, easily detached, leaving very granular surface; tissue dense, mottled deep red and white. Proportion of cortex normal. One small superficial urinary cyst. Left kidney small, surface granular, capsule white, thickened, easily detached. Several cysts on surface filled with yellow fluid. Section same as right. Bladder contracted, contained 20 c. c. of urine. Layers of pericardium largely adherent. Sac posteriorly contained 160 c. c. clear serum. Heart large, left ventrical much hypertrophied, muscle tough to knife, section pale. Mitral and tricuspid leaflets thickened. All valves apparently competent. No calcification. Aorta salmon color within and atheromatous. Right lung compressed into very small area; weight, 280 grams. Two dense adhesions over lower ribs. Adhesions at base of left pleural cavity and posteriorly. Left lung, crepitant; weight, 440 grams.

S. D. B.

ACUTE NEPHRITIS.

Ulceration of intestines.

W. B., aged 20, nativity, Illinois; admitted to United States Marine Hospital, Memphis, Tenn., March 25, 1900; died March 26, 1900.

History.—Patient admitted in a semicomatose condition, and the boat having left the wharf before the ambulance arrived, no history was obtainable. Could only be aroused enough to mumble his name; clothes covered with fæces; temperature in axilla 39.6° C.; pulse very rapid and feeble; pupils contracted; was catheterized and small quantity of urine withdrawn, which was found loaded with albumen. Was immediately given a hot bath, put in bed, and surrounded by hot-water bottles, producing free perspiration, stimulants administered freely, but coma rapidly deepened and patient died six hours after admission.

Necropsy (seven hours after death).—Body that of a colored male, fairly well developed and nourished; rigor mortis marked, abdomen considerably distended, large scar over right tibia; left plura normal; left lung weighed 424 grams and was normal; right plura adherent over nearly whole of lung; right lung weighed 593 grams; marked congestion of lower lobe; slight inflammatory exudation on visceral layer of pericardium; heart small, weight 246 grams; large ante-mortem clots in both auricles; valves competent; liver weighed 1,690 grams and appeared normal; spleen very dark and friable; weight 181 grams; pancreas normal; left kidney weighed 192 grams, right 164; certicol portion of each appeared swollen and congested, capsule easily removed; brain weighed 1,290 grams; great congestion of vessels of pia; stomach and upper portion of small intestines normal; lower portion of ileum and cæcum presented numerous large round ulcers with indurated bases and edges; colon and rectum normal.

D. E. R.

BRIGHT'S DISEASE.

Hepatitis, enteritis.

William Fitchell, male, white; age, 25; admitted to the hospital June 4, 1900; died June 10, 1900. Family history obscure. Patient stated that he had always been well until December last, when he noticed severe pains in left lumbar region, followed by swelling of the extremities. These symptoms subsided, but reappeared at intervals all winter. He was admitted to the United States Marine Hospital at Cleveland May 8, 1900, the diagnosis being Bright's disease. Discharged from Cleveland May 24, 1900, improved. Two days before admittance here patient was seized with severe pain in the abdomen, chiefly on the left side. Severe pain continued steadily until June 9, 1900, at 9.30 p. m., when patient had a severe attack of emesis, vomit being of inky blackness. Physical examination showed area of tenderness over region of spleen, abdominal muscles tense and hard, palpation negative. Flatness transversely across body from lower border of fifth rib to 3 cm. above umbilicus. Heart sounds normal. Complete oblique inguinal hernia (right), easily reduced. Strong ammoniacal smell emanated from patient. Examination of urine showed albumen and tube casts. Sp. gr., 1010; urea and urates diminished. Patient seemed to be strong, pulse was strong, respiration regular, until June 10, 1900, at 8.45 a. m., when he suddenly collapsed, dying in a few minutes.

Necropsy (six hours after death).—Post-mortem lividity marked, rigor mortis slight, ecchymoses very extensive, crust on anterior aspect of legs. Cloudiness of right cornea; left pupil dilated. Dura normal sinuses distended with dark venous blood. Brain of normal color and appearance; weight, 1,390 grams. Diaphragm pushed up to fifth ribs by tumor in abdomen. Lungs: Both lungs, which were adherent on all sides and could not be removed except by piecemeal, showed marked anthracosis. Pericardium adherent to pleura, otherwise normal. Heart: Right side of heart distended with blood (clotted), left ventricle thickened and hypertrophied; contained several large fibrin clots, one extending through aortic valves; weight, 290 grams. Abdomen: Abdomen opened, stomach normal, liver much hypertrophied, extending all the way across the abdominal cavity, from fifth rib to within 3 cm. of the umbilicus, the left lobe being as large as the right; weight, 2,140 grams; color normal, but liver showed great resistance to cutting; gall bladder distended with bile. Spleen: Dark red in color, showing several black spots on surface very much enlarged; 30 cm. in length; weight, 770 grams. Kidneys: Right, 12.5 cm. in length, surface pale, cortical substance pale pink, medullary substance white and glistening, pelvis filled with fluid. A small round black mass about 1 cm. in diameter was found in the pelvis of left kidney. This was soft and resilient like soft rubber, but more friable; weight, 220 grams. Left kidney 7.5 cm. in length, surface pale, cortex mottled brown and red, medullary substance pale dirty yellow; weight, 180 grams. Bladder distended with urine, ureters normal.

B. D. P.
J. G.

Granular kidney.

J. W.; aged 42; nativity, Massachusetts; admitted to United States Marine Hospital, Cleveland, Ohio, May 25, 1899; died June 21, 1899.

History.—Father died of paralysis; aged 75. Mother died of old age, about 75. Two sisters living and well. One brother died in infancy. No consumption, insanity, or cancer in family. Patient had scarlet fever and measles when a boy. Had gonorrhœa once. No syphilis. Was treated in this hospital, about two and a half years ago, sixteen days for kidney disease. Bowels regular. Urination free. Headaches occasionally. Present trouble: During the winter first noticed ankles would be swollen at night but all right next morning. About a month ago commenced to get worse, swelling reaching to knees. Pains in knees when walking and in back when stooping.

Physical examination shows pulse regular and rhythmic, slow rise and fall; arteriosclerosis. Lungs: Inspiration somewhat roughened; expiration prolonged in all areas; numerous fine, dry râles at right base. Heart: Apex in mammary line, fifth interspace. Upper border, third interspace; right border under left sternal margin; second tones loud in all areas; systolic murmur heard at second right interspace. Liver: Resistance palpable at costal margin; splenic dullness not determined; abdomen negative. Tight foreskin, with pin-point opening. Both feet and legs œdematous; mucous membranes anæmic. Urine contains abundance of albumen; no sugar; microscopic examination shows numerous granular casts, flat and caudate epithelial cells, crystals of calcium oxalate. Put to bed; plain milk diet. Free catharsis. Infusion digitalis and Basham's mixture ordered. Passed 2,400 c. c. urine during next twenty-four hours; sp. gr. 1.008; large quantity of albumen. For the next five days passed quantities of urine, varying from 1,900 c. c. to 2,300 c. c. for each twenty-four hours. Patient feeling much better. On June 7 there was still some œdema in legs, and on the 10th of June was put to bed again, having been allowed to get up for short intervals during past few days.

June 11.—Felt weak; passed 2,000 c. c. urine for past twenty-four hours.

June 12.—Condition much the same; quantity of urine for past twenty-four hours being 1,750 c. c.

June 13.—When in dorsal position there is a systolic murmur heard over apex and heard occasionally when in erect position. It appears to vary considerably.

June 14.—Face somewhat puffed; headaches. Hot bath ordered; also magnesium sulphate.

June 16.—Much the same; Basham's mixture and infusion digitalis renewed.

June 18.—Heart tumultuous; stopped infusion digitalis and ordered the tincture of digitalis. During the early part of night vomited, after which he slept well for rest of night. Quantity of urine voided lessened. Hot pack and nitroglycerin ordered. On evening of 19th copious perspiration was obtained by administering pilocarpine muriate.

June 20.—Says he feels comfortable, although he is somewhat dyspnoic. No urine passed since last night. Catheterized without result; tincture of digitalis increased and potassium acetate and magnesium sulphate ordered. At 4 p. m. patient much weaker; has not urinated since early morning. Catheterized and bladder washed out with saturated solution boric acid. Quite dyspnoic. Heart irregular; rough murmurs, both systolic and diastolic, heard in all areas. Bowels moved freely. Ward visit: Condition much the same. Says he is comfortable; has no pain; eyelids wide open; eyes staring; breath smells strongly of odor of urine.

June 21.—At 3.15 a. m. night nurse reports finding patient dead; last seen alive about 2.50 a. m., when making round.

Necropsy (*eight hours after death*).—Rigor mortis present. General nutrition good. No peritonitis. Pleural cavities: Slight adhesions on both sides. Right lung: Congestion and marked oedema. Old pleurisy between lobes and over posterior surface. No areas of consolidation. Much air and bubbles in vessels. Weight, 650 grams. Left lung: Much the same as right except that the pleurisy is limited to a small part of the lower lobe. The lower edge of the lower lobe is dark, airless, but not consolidated—apparently atalectatic. Left lung weighed 555 grams. Bronchial glands large and dark; not caseous. Pericardium: Adhesions general. Heart: Weight, 700 grams. The surface of heart is covered with thick, shaggy, fibrinous exudate, closely adherent to the surface, which is roughened beneath it. Some portions strip readily, while some are densely adherent. The exudate is apparently entirely fibrinous and not at all purulent. Myocardium dark, rather cloudy. Contents of cavities, clots. Valves normal. Coronary arteries and veins negative. Gas bubbles in heart cavity. Liver: Weight, 1,950 grams. Capsule smooth, dark; edges of liver rounded. Consistency markedly increased, on section dark and firm. Condition of cyanotic induration. Gas bubbles in vessels. Bile ducts and gall bladder negative. Spleen: Weight, 180 grams. Capsule smooth, dark. Consistency increased, color dark. Cyanotic induration. Malpighian bodies fairly conspicuous; brain and membranes negative; weight, 1,635 grams. Right kidney: Weight, 150 grams; capsule very adherent; surface rough and granular. On section yellowish and cloudy; cortex, one-half c. m. thick; glomeruli inconspicuous, fatty; medulla congested, much encroached on by fat; gas bubbles in arteries and veins. Left kidney: Weight, 130 grams; condition same as right kidney; pancreas negative; weight, 115 grams. Stomach: Large size; contents, gas. Bladder, urinary: Small, contracted; aorta shows slight atheroma; coverslip preparations made from lungs, liver, kidneys, and heart show large, thick, capsulated bacilli. Histological examination of hardened sections. Lung: Emphysema marked; moderate congestion; other portions show extreme congestion and marked emphysema in places, while in others the lung tissue is compressed. The alveoli contain desquamated alveolar epithelium; many cells containing brown pigment but no polymorphous nuclear, leucocytes, or red blood cells; marked pigmentation of lung with moderate interstitial pneumonia. Liver: Extreme congestion of liver capillaries; liver cells are separated into layers, one or two cells wide; no special distention of central vein; liver cells stain poorly; numerous polymorphous nuclear leucocytes in vessels and capillaries; no increase of connective tissue in portal spaces. Spleen: Capsule and trabeculæ thickened; vessels of splenic pulp congested; large amount of hæmatoidin in splenic pulp; no eosinophiles. Kidney: Capsule thickened; cortex much narrowed; the glomeruli are few and far between, and most which remain are hyaline or almost completely fibroid; many tubules are atrophied, and of those remaining many are much dilated, and a number contain hyaline casts. The collecting tubules are decreased in number and much dilated. There is a marked increase in the interstitial tissue, but the most marked change is the round cell infiltration. This is general, but in numerous areas the lymphoid cells are collected in such numbers as to resemble the malpighian bodies of the spleen. No eosinophiles. The blood vessels are much congested and some of the tubules contain red blood cells.

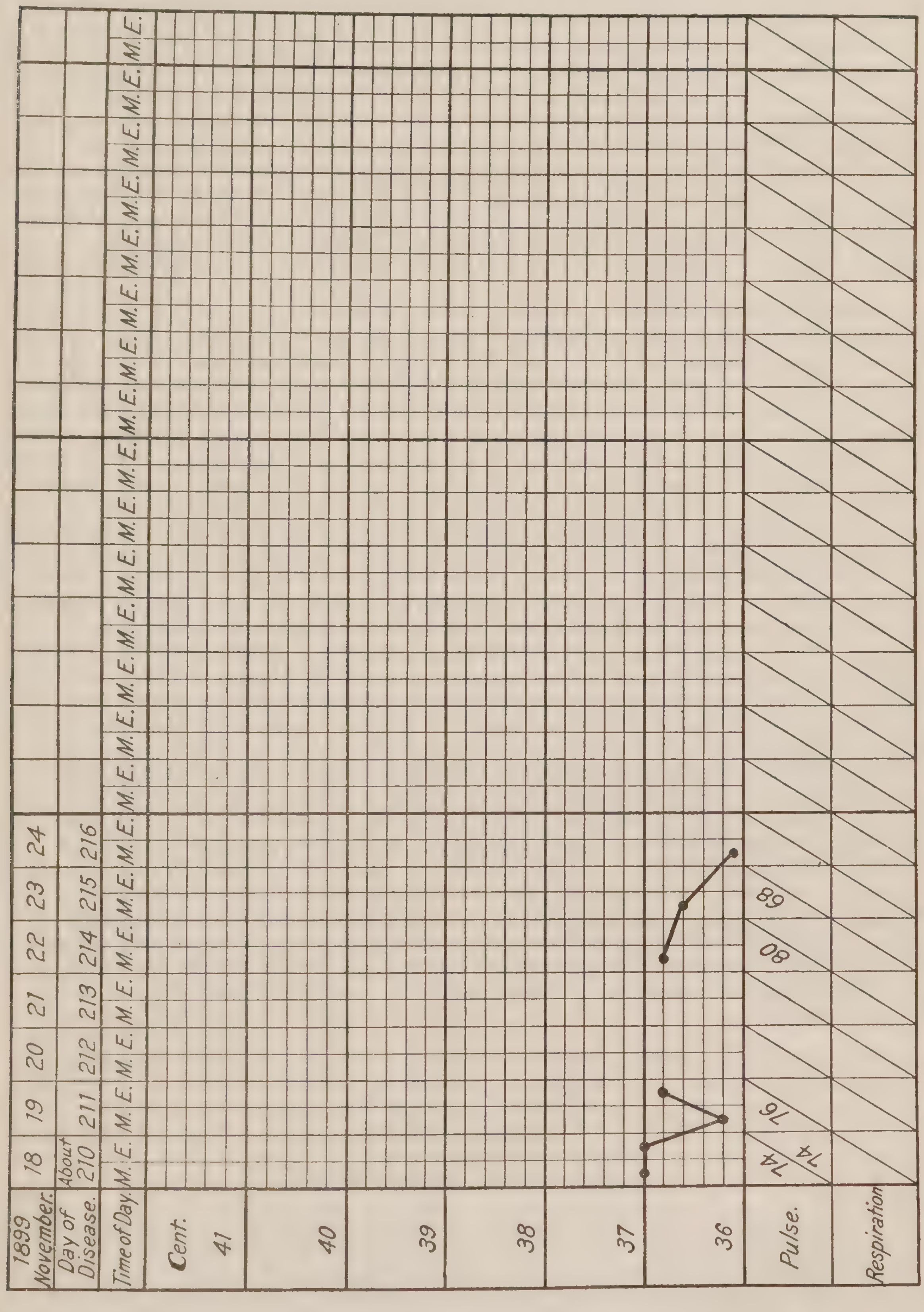
H. W. W.

Inflammation of liver, chronic; hobnail; Bright's disease; granular kidney; dropsy.

W. K.; age 38 years; nativity, Pennsylvania; was admitted to the United States Marine Hospital, port of San Francisco, Cal., November 17, 1899, and died December 19, 1899.

History.—Family history was negative. He had enteric fever about four years ago, and a venereal sore, followed by bubo and secondaries, eight years ago, and gonorrhea nine years ago. His present trouble began about seven months ago with swelling of both ankles and legs, followed by swelling of abdomen. His left hand was swollen, but not the right hand. The scrotum was greatly swollen, but no œdema of the face was noted. In the early part of the patient's illness he passed a very small amount of urine, dark in color. At time of admission he urinated six times in twenty-four hours, twice at night. His bowels had been irregular. He had had occasional attacks of vomiting.

Physical examination.—The patient was a well-developed, well-nourished male of medium size. His complexion was rather pale. Thorax was well arched. The abdomen was very much distended and, on percussion and palpation, the signs of a large ascites were present. The scrotum was somewhat œdematous. The legs were not greatly swollen, scarcely pitting on pressure. The apex beat of the heart was not visible nor palpable in dorsal posture. In left lateral posture it could be felt 2 c. m. to the left of the mammary line. Vocal fremitus was diminished over base of both lungs. Percussion showed movable dullness over the lower part of each lung, above which there was slight hyperresonance. Dullness over right lung began in fifth interspace; in left slightly lower. Vocal resonance was diminished over lower portion of each lung, as was the respiratory murmur. These two signs were somewhat exaggerated over the upper portion of the lungs. The heart sounds were feeble, but no murmurs were present. The pulse was 76. Patient said his abdomen had been tapped five times. November 20, urine was measured for twenty-four hours and amounted to 1,600 c. c. Peripheral vessels were slightly thickened. Liver dullness in mammary line extended to upper border of fourth rib when recumbent and to the third interspace when sitting. A slight protrusion was noted on abdomen 4 c. m. above and 2 c. m. to the right of the umbilicus, which was apparently a coil of intestine. The liver was diminished in size. The spleen was thought to be slightly enlarged. The patient complained of no pain. No change was noted in patient's condition until the morning of December 19, 1899, when uremia developed, the first indication of which was a convulsion at 9 a. m. Four convulsions followed, and patient grew rapidly weaker until 12 m., when death occurred. On admission the patient's urine was examined. Specific gravity, 1.011; reaction, neutral; color, pale straw; sediment, fine and diffuse; albumen present in large amount, but no sugar. Microscopic examination showed granular casts, with a few small round cells, a few red blood cells and pus cells, with large amounts of epithelial débris. There were no crystals. Subsequent examinations showed persistence of the above abnormalities of the urine.



[Marine Hospital, port of San Francisco, Cal.; name, W. K.; age, 38; disease, adherent pericardium, dropsy, passive congestion of kidney.]

Treatment.—On admission patient was given a hot bath and a calomel and soda powder. Citrated caffeine and Basham's mixture were prescribed three times daily. On November 22 the caffeine was stopped, and tincture of digitalis substituted. Siedlitz powder was given as required. Epsom salts and elaterium were used in turn, to attempt to reduce dropsical symptoms. December 11 patient complained of cough and was given a sedative cough mixture.

December 19, after the first convulsion, large doses of bromide of sodium were given, and strychnine and whisky were administered hypodermically as stimulants.

Necropsy (*three hours after death*).—The body is that of a well-developed, fairly well nourished white adult male of medium size; very marked general œdema; abdomen greatly distended and percussion wave plainly felt; rigor mortis and postmortem lividity are moderate; the skin is markedly white; the abdominal wall is thin, and on incision fluid flows from the peritoneal cavity, which contained in all 20,000 c. c. This fluid is almost colorless and is clear. The intestines are moderately distended, and present externally a normal appearance. The omental fat, mesenteric fat, and glandulæ epiploicæ are very well developed. With the exception of one small area of the duodenum to the liver, there were no adhesions in the abdominal cavity. The diaphragm was pushed up by the fluid so that its arch was on a level with the third interspace. The anterior mediastinal fat is excessively developed. The parietal layer of the pericardium is normal and its sac contains no fluid. The heart is somewhat distended; the right auricle filled with fluid blood, in which there are a few small clots; the right ventricle filled with fluid blood; the left auricle filled with fluid blood, and a large mixed clot which is not organized; the left ventricle contains a moderate amount of fluid blood, and its wall is slightly thickened; it weighs 215 grams; all its valves are normal. The left lung weighs 250 grams, and is considerably reduced in size by pressure of ascitic fluid. It is rather excessively pigmented, but is crepitant. The large bronchi show typical evidence of chronic bronchitis which is not seen at all in the smaller tubes. On section the lung substance is normal. The right lung weighs 300 grams, and with the exception of a small area of bronchiectasis is similar to the left. The spleen weighs 165 grams; it is firm to the touch, and its capsule is thickened and strips with difficulty, pulling out small pieces of the tissue and leaving a markedly granular surface. It cuts with greatly increased resistance and its section presents a red, beefy appearance. On scraping cut surface the pulp is easily removed, leaving a meshwork of fibrous tissue, which is greatly increased in amount and thickness above the normal. The left kidney weighs 130 grams; is generally very pale externally, but slightly mottled. The capsule is slightly thickened, but strips easily, leaving a smooth surface. On section the fat about the pelvis is markedly increased, the cortical substance much thinned and very pale, particularly so in the columns; the pyramids are also very pale. Both kidneys appear a little smaller than normal. The right kidney weighs 120 grams, and presents the same appearance as the left. The liver weighs 1,250 grams. In trying to separate the adhesion to the duodenum it was found so firm as to tear the liver substance. The liver is considerably smaller than normal; its capsule is thickened, and there are numerous artificial lobes. The lessening in size is more marked in the left lobe; the liver is grayish white. On its under surface are a number of spots, varying in size from a grain of wheat to a pin head, which are darker in color and depressed, presenting much the appearance of pockmarks. On section the liver cuts with increased resistance, and has an appearance like a section of nutmeg. The gall bladder is much thickened and its walls very fibrous, lessening its capacity to about one-fourth of normal. It is filled with normal-appearing bile. Intestines are normal. The bladder is empty and normal. The brain weighs 1,420 grams. There is extreme injection of the vessels of the pia mater and an area of adhesion of the dura mater to the parieto-occipital junction, just to the right of the interparietal suture, and 2 cm. in diameter. The brain substance is very pale, but otherwise normal.

W. M. W.
H. A. S.
J. M. G.

BRIGHT'S DISEASE.

Granular kidney, acute peritonitis.

A. H.; aged 42 years; nativity, Finland; was admitted to the United States Marine Hospital, port of San Francisco, Cal., November 13, 1897, and died April 25, 1900.

History.—Nine days before admission patient fell overboard, following which severe pain in chest, swelling of legs, and dyspnœa developed. On admission had a feeling of weakness. Lower extremities found to be œdematous; swelling under eyelids also present. Examination reveals nothing abnormal in heart or lungs. Pulse rapid and high tension. Urine contained albumen in abundance; reaction acid, specific gravity 1,024. After the use of nitroglycerin in increasing doses and pilocarpine, which produced free diaphoresis, the urine for twenty-four hours—three days after admission—was 1,200 c. c.; the swelling of legs disappeared in a week, and corresponding general improvement occurred. The latter did not continue, however, as on January 7, 1898, the quantity of urine for twenty-four hours was only 850 c. c. The tongue was heavily coated, and swelling of the extremities recurred. Examination showed that the heart was dilated and its muscular tone enfeebled; constipation was troublesome; there was dyspnœa on exertion, and at night when quiet in bed. In March the amount of urine had further decreased. In July, 1898, an abscess developed in abdominal walls midway between ileum and umbilicus. This healed after incision. On July 26, 1898, patient was discharged at his own request. He returned to the hospital and was readmitted August 17, 1898. Light work had been attempted while out, when swelling of the feet recurred, which had subsided before leaving hospital under rest and treatment. Umbilical depression of abdomen was now found obliterated and the abdominal cavity distended with fluid. Lower eyelids were puffy and conjunctiva injected. Percussion indicated the presence of a small amount of fluid in the left pleural cavity. The heart sounds were somewhat indistinct and very rapid; the pulse was weak, irregular, and intermittent. Urination occurred seven times in twenty-four hours and the amount voided each time was small. Patient was so weak that he could hardly stand up and he had pain in the lumbar region. Urine contained both albumen and sugar—the former in large amount; reaction acid, specific gravity 1,035. The microscope revealed granular casts.

April, 1899.—The amount of urine passed in twenty-four hours was often as low as 500 c. c. He had pain in left lumbar region and left hypochondrium. Second heart sound was not accentuated; no bruits.

June 17, 1899.—Teeth are black and crumbling; anorexia; weakness. The amount of urine passed in twenty-four hours was 1,000 c. c. A considerable ring of albumen present. Specific gravity 1,023.

July, 1899.—Urine daily is only 250 c. c. Patient's weight is 123 pounds.

August, 1899.—The prominent symptoms are cephalalgia, general malaise, and a sense of fullness in the abdomen.

September 6, 1899.—Quantity of urine 525 c. c. Abdominal cavity filled with fluid, distinct wave being felt on gentle palpation; the umbilicus is flattened out and the abdominal walls themselves are œdematous. The wave indicating fluid within extends around to the lumbar region. Two months later the scrotum became œdematous; in fact a general anasarca was present and a vicarious discharge of fluid from a finger nail abrasion on scrotum and outer side of left thigh began.

November 5, 1899.—Abdomen was tapped after antiseptic cleansing and 11,500 c. c. of pale serum withdrawn, but still the cavity remained considerably distended. There was pain and numbness in index and middle fingers of right hand, the same being of remittent character, recurring at intervals of one to two hours and lasting about fifteen minutes each time. There was slight pain present in these intervals, and the terminal phalanges were tender to pressure. In the intervals, also, slight cyanosis was observed and ecchymosis beneath distal portion of each finger nail. Patient stated that the attacks were attended by painful contraction of the extensor muscles of right thumb. The left hand also became involved. The local application of heat relieved the pain.

January 11, 1900.—Urine for twenty-four hours, 600 c. c. Fingers less painful; attacks less acute and less severe. Both feet are now cyanosed. The left leg on outer surface contained a number of small eroded areas from which fluid escaped freely and had for a number of months. Patient regarded this as his "safety valve."

February 4.—Still complained occasionally of the old trouble in right fingers. Steam baths improved patient's condition.

February 15.—Abdominal cavity is distended even laterally and ensiform cartilage is pushed up in front. Fluid transmission wave typical. Flat percussion noted excepting at extreme upper portion, where the coils of intestine were floated. Abdomen was tapped the day following and 15,000 c. c. of clear blood serum withdrawn under antiseptic and local anæsthesia. The cavity was emptied as freely as possible at patient's urgent request and he suffered no bad effect during or after the operation.

February 17.—Urination more scanty than ever; patient was relieved by the tapping, but abdomen had already begun to refill; dyspnœa was less, but pulse very feeble, as it had been for a long time.

February 22.—Urination increased; ankle stronger; abdominal walls were somewhat lax; urine 500 c. c. After first paracentesis weeks elapsed before the puncture could be closed; even suturing was not successful.

March 6.—Patient stood a third tapping very well; 12,000 c. c. of fluid same character as formerly withdrawn. In ten days the cavity refilled, and on March 22 a fourth tapping was resorted to, 15,000 c. c. of fluid being removed, much to the satisfaction of patient. Each time after the first he urgently requested the operation.

April 3.—Urination scant; thirst excessive; patient was weak, prostrated, and suffering from an overdistended abdomen; he was very uncomfortable and wanted to be tapped at once; bowels moved six times a day under catharsis.

April 5.—Paracenthesis practiced this day, and 13,000 c. c. of slightly opaque fluid withdrawn (fifth operation).

April 7.—More comfortable feeling prevailed.

April 12.—Complained of legs feeling very weak; slept poorly; urine, 750 c. c. Albumen had continued present in urine since patient's admission to hospital, two and a half years ago, the amount once, in 1899, ranging as high as 1 per cent. The specific gravity was more often found to be 1035; in September, 1899, it was 1041. There had always been a heavy sediment, and granular casts were revealed by the microscope at each examination. In addition, hyaline, cylindrical, and round-celled epithelial casts had been seen during the past year; also squamous cells, the usual urinary bacteria—streptococci and bacilli; leucocytes at times were present, and once, during the month of April, red blood corpuscles. The reaction of the urine up to the present year was always acid; recently, for the past three months, it had been alkaline. The temperature had usually been normal or slightly subnormal.

April 16, 1900.—Uncomfortable feeling present in abdomen; patient slept poorly. Urine 750 c. c. Abdomen enormously distended, causing dyspnœa; it refilled rapidly after last aspiration.

April 17.—The operation was repeated and 20,000 c. c. of the slightly turbid serum removed through trocar canula introduced in left iliac region, the location usually selected for the puncture. Immediate relief followed the above procedure. Through the flabby abdominal walls, which are also much thinned, the rounded margin of the liver could be distinctly felt for 3 inches below the free border of the ribs. Even the separation between the lobes was distinctly palpable.

April 11.—Patient felt quite comfortable; some soreness within abdomen, and free margin of liver was very sensitive. The walls were so relaxed that the organ could be taken up in the palm of the hand.

April 19.—Patient felt worse than he ever had the third day after an aspiration; it had not given him even the temporary relief that it formerly did, and he did not think that he could stand a repetition of the operation. He felt badly all day of 18th and the pulse was feeble and slow. The cheeks had a livid hue, and the general state cachectic.

April 21.—There was an area just below left knee on outer side which was sensitive to pressure. Fluid oozed through the skin here periodically.

April 22.—Pulse very feeble; 70 per minute. Patient stood only with much discomfort; dyspnœic.

April 23.—A bad night was passed; medicines taken were vomited; there was pain in abdomen and hands were cold. Patient looked badly and articulated with difficulty. Pulse very feeble. Respiration 28 per minute and superficial.

April 24.—Patient required morphine hypodermically for relief of pain in abdomen. He was so weak he could hardly speak. Eyes were partly closed; he was almost pulseless. Strychnia had little effect. Impending dissolution.

April 25.—Patient delirious during the night. Got up and wanted to get at the medicine case. He soon became pulseless and unconscious. Mouth wide open, eyes glaring, hands livid; respirations slow and feeble; moribund. Expired at 3 p. m.

Treatment.—Under pilocarpine and rochelle salt patient improved after admission to hospital in November, 1897. Infusion of digitalis was employed for its diuretic effect and the heart was also stimulated during the later course of the treatment by nitroglycerin, caffeine, and strychnine. Free purgation was kept up with compound jalap powder, calomel, and salts, as stated. The daily steam bath seemed in a large measure responsible for the early improvement. The diet was restricted to liquids, and free imbibation of water was always insisted upon. Elaterium was effectual as a hydragogue cathartic in the early stage of the disease. Enemata were often administered in the subacute stage, epsom salt, glycerine, and water being injected together into the lower bowel. The heart stimulation was varied to meet the indications present, and as the nephritis passed, despite the best therapeutic efforts, into the chronic stage, the treatment naturally became for the most part symptomatic, utilization of the eliminative powers of the skin and intestines being the main guide. The cardiac diuretics were pushed vigorously, and in this connection the usual range of drugs was, in turn, administered. Still later stimulation of the kidneys themselves was attempted, and here Basham's mixture was given the preference, occasionally acetate of potash itself being used in gram. doses. The surgical treatment which played such an important rôle in the third stage of the disease (contraction) has been incorporated in the foregoing clinical history. At the end stimulation was pushed vigorously, but the organs would not respond. Even the very beneficial daily steam baths of thirty minutes, which were a feature of the treatment in the last six months of the disease, patient finally became unable to stand. Tonics were not neglected, and long courses of elixir of iron, quinine, and strychnine, compound syrup of hypophosphites, etc., are recorded with the bedside notes. This epitomizes a two and a half years' course of treatment and the principles employed in the same. A wide range of drugs was tried, the chief ones of which have been enumerated. The use of these remedies was not without marked effect at times, especially in the earlier stages of the disease. Dropsy of the legs was often made to disappear under rest and stimulation, and the patient was saved much discomfort by relief for a time, at least, of various symptoms recorded. A distinct increase in the urine would at times become noticeable under diuretics. There were times when all treatment was discontinued with apparent advantage. Constipation was an obstinate symptom usually, and utilization of the eliminative function of the intestines required the use of large quantities of the hydragogue cathartics. Elaterium, calomel, and jalap were usually given the preference. It would take some time to estimate the number of liters of Basham's mixture which patient has taken. Oozing from the abraded surfaces referred to was encouraged, as these areas were undoubtedly important auxiliaries to the eliminative organs proper. The quantities of fluid which at times escaped through the skin were enormous, and local receivers for it had to be arranged. The only interference was daily antiseptic cleansing of these areas. At times during the past year chloral hydrate in 6-decigram doses had to be administered for sleeplessness. The use of morphine had been avoided as far as possible. A local anodyne application of chloroform liniment was used to subdue the pain of the erythremelalgia of fingers noted. The use of carbonate of lithia in 3-gram doses since the beginning of the year seemed to be without particular effect. Interesting to record was the intermittent and irregular elimination of the methylene blue in 1-gram doses, corroborating the diagnosis of nephritis and indicating the impaired eliminative function of the kidneys. Usually the blue color would appear in the urine in one to two hours after administration of the drug; then, during the next day or two specimens voided would fail to show bluish coloration at all, or only in traces. During one test the elimination was not completed for one hundred hours. Fluid extract of ergot in 20-minim doses every three hours had no influence in limiting the recurrence of the abdominal effusion after aspiration or in preventing it. As indicated, morphine sulphate (0.015) was administered hypodermically during the last three days of the disease to control abdominal pain. The temperature chart presents no feature of notice.

Necropsy (*twenty-four hours after death*).—Body that of an adult white male, apparently 50 years of age, well developed, poorly nourished. Post-mortem rigidity absent; lividity present. Legs dropsical, abdomen distended. The abdominal walls show a number of round scars below umbilicus, and laterally to the left the seat of the former punctures. Thighs and arms on outer surfaces show multiple small cicatrices, oval, from which fluid escaped after death. Subcutaneous fat absent. On opening the abdominal cavity 20,000 c.c. of greenish-tinged fluid escaped. A membrane of lymph covered the intestines, and the latter were agglutinated by recent exudate. The diaphragm was forced up to the third rib. Pleuritic adhesions were present over left lung, upper part. Heart small and flabby; weight 230 grams. Pericardium macroscopically normal; fluid absent. Aorta plugged with solid white fibrin, which was also present in the ventricles. The walls of the latter, especially the right, are much thinned. Aorta and mitral valves show atheromatous placques. Lungs contain about the normal amount of pigment. The right lung is small; weight 400 grams; the upper lobe is congested. The left is covered with bands of connective tissue over upper lobe; the latter is adherent to the lower. The base is engorged with blood; hypostatic pneumonia. Weight of lung 650 grams. The left kidney weighs 250 grams; the right 237 grams. The organs are enlarged and extremely fatty—typical large white kidney. The pyramids are replaced in areas by a white granular and fatty structure, rendering organs friable throughout. Capsules are not adherent. Spleen enlarged, dark, and friable; weight 387 grams. The liver weighs 1,480 grams. Gall bladder filled with mahogany-colored fluid. The sack itself was yellow as gold. Over right lobe are large firm bands of adhesions, attaching liver to abdominal walls. Capsule much thickened over entire surface. Structure dark, friable, and coarsely granular. Conspicuous absence of intercellular substances. A remarkable condition in general and one seldom seen. The pancreas is extremely hard and weighed 50 grams. The brain shows œdema; cerebro-spinal fluid markedly in excess. Structure very soft and vessels over surface prominent. Weight 1,520 grams. Intestines serous coat involved in an acute inflammation, exudative. Bladder empty. Sections of all affected organs preserved for microscopical study.

F. J. T.
J. M. G.

Microscopic report.—Kidneys: In both kidneys the interstitial connective tissue is much in excess. This condition is most marked in certain localized areas. In these particular places not only the connective tissue fibers but the connective tissue cells are more plentiful than normal, and commingled with them there is a sprinkling of lymphocytes, indicative of chronic inflammation. In such areas the tubules are very small and atrophic, being strangled, as it were, by the new and excessive connective tissue growth. But the most marked changes are seen in the Malpighian bodies. These show a very extensive hyaline degeneration, and have almost entirely been replaced by masses of clear fibrous tissue. Parenchyma between the above-mentioned areas is rather granular and cloudy in some very few places and occasionally a hyaline cast may be seen in the lumen of one of the convoluted tubes. Otherwise the parenchyma is in good condition, and gives evidence, if anything, of a compensatory hypertrophy. Diagnosis: Interstitial nephritis incident upon sclerotic changes in the blood vessels. Liver: Shows a very slight tendency to excessive proliferation on the part of the interstitial connective tissue; otherwise normal. Spleen: Trabeculae rather dense, otherwise normal. Malpighian bodies: Irregular and illy defined; very loosely packed. Malpighian arteries show a marked thickening of the intima and adventitia. Pulp: Is not very hyperæmic, but contains many fibroblasts. Reticulum is markedly thickened. Pancreas: Interstitial tissue slightly hypertrophic. The arteries are almost occluded by the thickened intima. Lung: The septa are thin and the air spaces somewhat larger than normal. The larger blood vessels and the capillaries of the septa are distended with blood. There is no exudate into the alveoli.

M. E. L.

SOFTENING OF THE BRAIN.

Hemorrhage into the lateral ventricles; Bright's disease; contracted kidney.

J. W.; age 55; nativity, Ireland; admitted to the United States Marine Hospital, Chicago, Ill., for hemiplegiar, July 7, 1881, died January 29, 1900.

History.—The patient being unable to speak, his friends stated that for several weeks previous to admission he complained of some pain in the back of his head, but aside from that he seemed perfectly well until July 4, 1881, when he found it difficult to walk, owing to the partial loss of control over the right leg; he found also, upon attempting to wash, that he could not hold the soap in his right hand, and in a short time became helpless and speechless. However, he improved sufficiently to go to his boat the following morning, and soon thereafter became unconscious.

He improved so as to be cognizant of what passed about him, and was able, when admitted, to turn himself upon his side. Pupils normal; pulse full and slow; no control over sphincters; passes urine and feces involuntarily; aphasia.

July 11, 1881.—Pupil of the right eye dilated; bowels have not moved during the past forty-eight hours.

January 15, 1882.—Epileptiform attack occurred about 10 a. m.

April 1, 1882.—Occasional epileptiform seizures occur, and patient complains of persistent slight pain over and behind the right ear.

September 4, 1897.—Patient sustained a Pott's fracture, for which a plaster cast was applied, and firm union, without deformity, was obtained in thirty days.

August 12, 1898.—During the past five months has failed mentally and physically; unable to walk without aid; athetosis marked.

October 29, 1899.—Able to be up; eats and sleeps well.

January 1, 1900.—Sits up all day; sleeps well at night.

January 25, 1900.—While eating dinner, patient suddenly became unconscious. Vomited pieces of undigested ham which he had eaten for breakfast. Breathing is stertorous, ala of right nostril collapses on inspiration, requiring a nasal speculum to keep it open. Both lips vibrate during expiration; pulse full and regular; tracheal râles. Vomiting continued at intervals during afternoon; stomach washed out.

January 26, 1900.—Patient still unconscious; pulse full and regular.

January 28, 1900.—Condition unchanged.

January 29, 1900.—Died at 8 a. m.

Necropsy (*six hours after death*).—Body that of a male, about 55 years of age; height, 5 feet 8 inches; right arm and leg atrophied; good amount of subcutaneous fat, especially over the abdomen. Rigor mortis and post-mortem lividity present. Upon section of the left hemisphere a cavity was found of about 300 c. c. capacity filled with blood clots and bloody fluid, its wall about 1 c. m. in thickness, formed by the gray cortex of the hemisphere for the most part, the tissues of which were normal in appearance. The destruction of tissue involved the white matter of the hemisphere very extensively, but the basal ganglia and choroid plexus escaped. Unhealthy, flabby granulations lined the cavity throughout, and extended into the lateral ventricles. The right hemisphere appeared to be firm in consistence, but studded everywhere with punctate hemorrhages.

Numerous yellowish spots in the vessels of the pia mater were noted, probably areas of fatty degeneration. The source of the fatal hemorrhage could not be demonstrated. Pericardial sac normal, contains about 20 c. c. of fluid; heart muscle normal; valves competent; weight of heart 420 grams. Lower lobe of right lung consolidated, pleural adhesion at apex, weight of lung 740 grams. Left lung normal, weight 540 grams. Liver normal in structure and form, weight 1,370 grams. Kidneys small, granular, and fatty; weight of left 120 grams, of right 100 grams. Bladder, urethra, and prostate normal. Pancreas normal, weight 100 grams. Stomach and intestines normal. Aorta and vena cava normal. Degeneration crossed pyramidal tract of spinal cord, right side; membranes normal.

M. K. G.

Note.—The primary lesion in this case was evidently cerebral hemorrhage; and, considering the extensive destruction of brain tissue resulting therefrom, ultimately forming a cavity of 300 c. c. capacity, it is remarkable that the patient recovered and survived nearly nineteen years in comparative comfort, his main disability from the injury being hemiplegia and aphasia.

H. W. S.

MULTIPLE INJURY.

Fracture of base and vault of skull, with extradural hemorrhage.

C. C.; aged 24 years; nativity, Sweden; was admitted to the United States Marine Hospital, Chicago, Ill., September 3, 1899; died September 3, 1899.

Patient arrived at Illinois Central station from South Chicago and was transferred to the United States Marine Hospital by the ambulance, arriving at 1.30 a. m., September 3, 1899. The mate who accompanied the seaman stated that the patient fell into the hold of the steamer *City of Cleveland*, a distance of 20 feet, at 9 p. m., September 2, 1899. Examination shows the patient to be unconscious, with a large lacerated wound of the scalp, which had been sutured by a private physician. The eyelids on each side are swollen and ecchymosed. Pupils are normal. Blood is present in the nostrils, indicating hemorrhage. Palpation gives no evidence of external fracture. There is no paralysis of limbs, but patient is unable to swallow. There is also a contusion of the right shoulder with ecchymosis.

Treatment.—The bladder was catheterized, ice bags were applied to head, and hot-water bottles to lower extremities. Strychnine and whisky were given hypodermatically. Patient lingered in an unconscious condition and died at 5.35 a. m.

Necropsy (five hours after death).—Body is that of a well-developed and well-nourished adult white male. Post-mortem rigidity is not marked. There is a contusion of the right shoulder with ecchymosis. Upon the right side of the head is a scalp wound 2½ inches long, 1 inch posteriorly to the vertex. All the tissues of the scalp are markedly congested. The scalp is divided by a transverse incision over the head, and reflected back. The fronto-parietal sutures have separated, especially upon the left side. The calvarium is removed and the skull found to be a fourth of an inch in thickness. Upon the left side between the dura and skull is a blood clot, extending over the frontal and parietal lobes, and down to the temporo-sphenoidal lobe. Underneath the clot the dura is ruptured in two places. Upon the right side, over the anterior portion of the right temporo-sphenoidal lobe, is a clot an inch in diameter, also extradural. The brain was removed; weight, 1,450 grams. Then the dura lining the remainder of the skull was entirely removed, and the following condition found: Upon the left side a separation of the fronto-parietal suture, also of suture between the sphenoid and the squamous portion of the temporal bones, with a fracture through the great wing of the sphenoid extending to the sphenoidal fissure. There is also a fracture through the occipital bone upon the left side of the foramen magnum. Upon the right side is a fracture of the orbital plate of the frontal bone, with a small clot over the right sphenoidal fissure.

W. A. K.,
H. W. S.

CONTUSION OF BRAIN.

T. K.; black; nativity unknown; admitted to United States Marine Hospital at New Orleans, La., September 29, 1899; died same day.

History.—Patient was brought to hospital by ambulance about 8.30 a. m. About

7 p. m. September 27, he had fallen head first into a hatchway, a distance of 10 feet. There was practically nothing done for him until reaching this hospital.

Examination.—Patient was unconcious; pulse rapid and weak; breathing shallow and rapid, skin warm and moist; eyes bloodshot and turned upward; pupils dilated, obscured by old corneal opacities; patient had passed urine and feces involuntarily during ambulance ride and had vomited bile-tinged fluid when placed in bed. On the head near vertex was a contusion and swelling about 6 cm. in diameter; near occiput on right side was smaller swelling. Slight abrasions of skin were found on right shoulder, elbow, and hip; no fractures of any kind could be found. Received hypodermic injections of whisky and strychnine; ice cap applied to head. Temperature, 9 a. m., 39.8; respiration, 48; temperature, 12 m., 40; respiration, 58, breathing heavily; 1 p. m., breathing more labored, sweating profusely. Died at 1.30 p. m. Was never concious after injury.

Necropsy five hours after death.—External appearances: Body of male negro, well nourished; rigor mortis well marked; slight abrasions on right shoulder, elbow, and hip; two swellings on head near vertex; eyes open, turned upward, cornea nearly opaque. Cranial cavity: On removal of skull cap not the slightest trace of any fracture could be found on the outer or inner tables nor at base of the skull. Membranes intact and containing some bloody serous fluid; membranes slightly adherent by recent inflammatory deposit along longitudinal fissure; adhesions easily torn. Removal of membranes showed brain, especially occipital lobes, to be deeply congested, but no localized hemorrhage nor blood clot was seen. No wound of brain tissue. On section very dark blood flowed from vessels, clotting quickly. Puncta vasculosa very plainly marked. Brain tissue normal; ventricles filled with blood-tinged serous fluid. Thoracic cavity: Heart, pericardium, lungs, pleuræ, great vessels, and nerves found normal. Abdominal cavity: Stomach, partially filled with bile-tinged fluid; liver and ducts, spleen, kidneys, suprarenal capsules, intestines, rectum, bladder, generative organs, great vessels, and peritoneum found normal.

W. W. K.

ENDOCARDITIS ULCERATION.

Abscess of the brain, etc.

C. F.; age and history unknown; admitted to the United States Marine Hospital, Baltimore, Md., at 11 o'clock on the night of January 30, 1900, and died at 10.50 o'clock on the night of January 31, 1900.

No history was obtainable from any source. Upon admission the patient was in a comatose condition; temperature, 38.4° C. in the axilla; pulse, 128 and weak; respiration, 44 to the minute. The pupils seemed normal in size and in reaction to light. There were no signs of external violence. There was constant tremor of the muscles of the hands and forearm, also of the muscles about the mouth. Strychnine was administered hypodermically. The temperature rose to 40.6° C. on the following morning. A cold bath was given, which reduced the temperature to 37.4° C. and revived the patient to a state of semiconsciousness for a short interval, during which he gave his name, then sank into a state of loud-muttering delirium. The temperature rose to 38.6° C. by 1 p. m. and to 40.8° C. by 3 p. m. A cold bath was given and the temperature reduced to 37.2° C., but consciousness was not regained. There was a rise of temperature to 40° C. at 6 p. m., which was reduced to 37.6° C. by a cold bath. At 10 p. m. coma was profound. Death ensued at 10.40 p. m. January 31, 1900.

Necropsy twelve hours after death.—Rigor mortis well established; marked postmortem lividity present in dependent portions of the body. Body fairly well nourished. Pleural cavities normal. Pericardial sac contains 30 c. c. of sero-sanguinous fluid. The heart is somewhat enlarged; the left ventricle empty, its wall hypertrophied and firmly contracted. The right ventricle contains a chicken-fat clot which, branching, extends into the pulmonary arteries. The wall is seemingly of normal thickness. The heart weighs after opening 470 grams. The mitral valve is thickened, contains atheromatous patches, and is incompetent. The aortic valve is incompetent; the three segments are matted into one mass of cauliflower-like vegetations, thick and rigid at the base, wherein is embedded a thin bone-like plate. This growth is soft and readily broken at the free edge, which projects into and narrows greatly the aortic orifice. Close under the aortic opening there is a collection of small wart-like projections from the inter-ventricular septum; among these excrescences are scattered a number of small ulcers in the endocardium, which appear to have weakened the septum and allowed the formation of a small aneurismal dilatation at this point. Within the pericardium the exterior of the aorta is reddish, somewhat rough and dilated, forming a distinct aneurism. The aneurism sinks below the auriculo-ventricular border, within the pericardium, and forms a cul-de-sac within which the intima is apparently inflamed about the base of a granular warty growth which is undergoing necrotic changes. The left lung is congested. It weighs 390 grams. The right lung is congested; the superior lobe near the center is the seat of a small area of inflammation surrounding what is thought to be a small embolic abscess. The liver is firm and full of blood; it weighs 1,480 grams. The right kidney is congested; in one of the small vessels of the cortex is found a small plug resembling a fragment of the growth on the heart valves, and beyond this in the course of the vessel is a cyst about as large as a buckshot, which is thought to be of embolic origin. The right kidney weighs 125 grams. The left kidney contains two small cysts in the cortex about the size of a buckshot; it weighs 145 grams. On the inner surface of the occipital bone, to the left of the median line, is observed an area of necrosis, oval in shape, about 7.5 centimeters in diameter, limited below by the groove for the lateral sinus, internally by groove for the superior longitudinal sinus, and involving the inner table of bone and diploic tissue. Around the circumference of this area the inner table appears jagged and irregular, slightly undermined and pushed inward toward the brain, as if distended by pressure exerted by an accumulation of material between the outer and inner tables of the skull, furnished by necrotic changes going on in the diploic tissue. Here and there is noticed a feeble endeavor at the reproduction of bone at the upper border of the necrotic area, while centrally and lower more recent changes of the same character are noticed, and near the lowest limit necrotic changes had almost penetrated the outer table and were slowly progressing; all of which changes suggest perhaps that the abscess found here was of slow formation. The occipital lobe of the left cerebral hemisphere resting against this necrosed area shows marked destruction, due to suppuration. The whole lobe is affected; the apex, lying in direct contact with the bone, has suffered most, being completely broken down. In the center of the lobe is a large pus cavity communicating externally with the cavity in the bone and opening into the posterior cornua of the left lateral ventricle, which ventricle is bathed in purulent matter. There is no special involvement of the walls or floor except that mentioned of the posterior cornua. The optic thalmus and corpus striatum appear normal—no evidence of hemorrhage, no sign of clot. The veins and arteries are full. The right ventricle contains purulent fluid, which seems to have transuded from the left ventricle. The cerebral substance of the right hemisphere exhibits no sign of suppuration except around the posterior cornua of the ventricle, near the center of the occipital lobe, where an abscess about 3 centimeters in diameter exists.

From these observations we may deduce the following, viz: That the suppuration of the bone was, perhaps, primary to that of the brain. First, because no embolism of the posterior cerebral arteries could be detected and it seemed that the course of the pus could easily be traced from its original source in the bone through the left cerebral lobe, thence to the opposite lobe through the ventricles. Secondly, had the cerebral abscess been primary, death would have ensued long before it could have extended to the bone and affected it to the extent revealed at the necropsy.

T. B. P.
G. P.

INFLAMMATION OF MEMBRANES OF BRAIN, CHRONIC, DIFFUSE.

Hemiplegia, left, incomplete; paralysis, bilateral, complete.

I. H.; aged, 44 years, colored; nativity, South Carolina; was admitted to the United States Marine Hospital, St. Louis, Mo., October 19, and died November 4, 1899.

History.—On two previous occasions had been in this hospital for treatment of malarial fever, intermittent. At these times he complained of more or less constant headache; there was marked arterial degeneration for a man of his age, the patient's mental processes were abnormally retarded; his speech was slow but not ataxic; and he had been regarded among his associates as eccentric. Over two months have elapsed since he was last treated at this hospital. He was perfectly conscious on admission, and gives following history: Four days ago, while lowering some freight on his left shoulder, he suddenly grew weak in calf of the leg and in the shoulder, left side, falling to the deck with his load, sustaining no trauma. He could not walk or use his left arm. Has not been unconscious at any time during nor since the accident. When his boat reached the dock here he was taken home in a carriage by his wife, and the next day brought here in the marine-hospital ambulance. There is motor and sensory paralysis on the left side from the shoulder downward.

Pupils are equal and react to light but poorly to accommodation. Arcus senilus well marked. Atheromatous changes in vessels noted. Facial muscles and tongue not involved. Is comfortable; has no pain. Says he can urinate all right, but it was considered advisable to introduce catheter under antiseptic precautions to ascertain condition of bladder and kidneys. Urinalysis negative. Ordered strychnine sulphas 0.002 gm. q. 4 h.; head of bed elevated; liquid diet; bladder emptied every eight hours, night and day; hydragogue cathartic.

October 22, 1899.—Can move left leg slightly. Feels comfortable.

October 29, 1899.—Some dilatation of left pupil. Otherwise unchanged.

November 1, 1899.—Marked change for the worse. Totally unconscious; pupils dilated, but even. Stertorous respiration. Pulse rapid and gaseous. Involuntary voidance of urine and feces. Paralysis bilateral now. Ice cap to head. Fed via rectum. Medication hypodermatic.

November 2, 1899.—Seems somewhat improved and slightly stronger. Coma less marked. He is restless and attempts to move about the bed. Rectum intolerant to-day. Fed with stomach tube, introduced through the nose. Temperature is rising.

November 3, 1899.—Failed to rally. Became gradually weaker during the day. Temperature 39.3°. Never regained consciousness. Died 6.15 p. m.

Necropsy (seventeen hours after death).—(Patient's wife would give permission to inspect brain only.) Body well nourished. Rigor mortis well developed. No evidence of external injury. No pressure sores. Thickness of calvarium, 9 centimeters. Weight of brain, 1,470 grams. Dimensions of brain, 14.76 by 18.5 by 9 centimeters. All meningeal vessels considerably injected. Adhesion the size of a quarter in superior portion of first frontal convolution on right side. Adhesion size of a quarter at middle of line between parietal and occipital lobes, right side. Another adhesion similar to last on opposite side, in corresponding locality. Several smaller adhesions scattered over occipital lobe. All adhesions were firm, and in detatching them the pia mater and portions of cortical substance were removed with them. The ventricles were abnormally distended and filled with serous fluid. On section numerous petechial spots were seen scattered throughout the substance of the brain. The cerebellum was relatively large and considerably flattened from above downward. In the middle fossa, on the right side, were two abnormal spiculæ of bone which left corresponding depressions in the tempero-sphenoidal lobe on that side.

J. M. H.

CHRONIC NEPHRITIS.

O. B.; aged, 62 years; nativity, Ireland; admitted to the United States Marine Hospital, Baltimore, Md., April 16, 1896; died July 20, 1899, at 6.50 p. m.

History.—Patient transferred from St. Vincent Hospital, at Norfolk, Va., with recorded history of "morbus brightii." On admission to hospital considerable cough and expectoration was noted. Pain in left side, especially upon coughing. Anorexia, constipation, and shortness of breath on slightest exertion were prominent symptoms. His general condition was quite feeble, as he was convalescing from a recent attack of catarrhal pneumonia. Physical examination revealed area of cardiac dullness increased. The heart beats were irregular, both in force and rythm. A distinct systolic murmer at both apex and base could be heard. Apex beat displaced somewhat downward and to the left. Spleen and liver enlarged. Arteries atheromatous. Amount of urine in twenty-four hours 1,400 to 1,600 c. c. Pale in color. Specific gravity, 1.012. Slight amount of albumin. The usual remedies—tonics, stimulant diuretics, and a nutritious milk diet—greatly improved patient's condition. On March 24, 1897, had chills and fever. Quinine administered with good results. From date of admission patient was subject to irregular attacks of nausea and vomiting, sometimes accompanied with diarrhea, but usually with obstinate constipation. Few and at long intervals at first, they became more frequent and severe during the last six months of his life. On July 14, 1899, patient complained of pain in stomach and over region of gall bladder; considerable nausea, with disgust for food and vomiting of same when taken. This was persistent, and vomited material was mixed with a greenish, black fluid. A harassing cough, with copious expectoration, was extremely exhausting. Urine voided involuntarily; small in amount. Dyspnœa marked. Mental faculties clear until a couple of hours before death.

Necropsy (twelve hours after death).—Body well nourished, being 5 feet 8 inches in height and weighing 130 pounds. Rigidity marked. Slight discoloration of back and scrotum. No fluid in abdominal cavity. Spleen weighed 90 grams, mahogany color with a greenish tinge. Kidney (right): Weight 75 grams. Small, granular, pale. Pelvis filled with fatty deposit. Capsule fatty. Cyst on lower portion of anterior surface containing a colorless fluid. Slight congestion of small vessels.

Cortical portion scant. Kidney (left): Weight 65 grams. Small, pale, granular. Capsule densely adherent to surface of kidney, pealing with difficulty. Slightly injected. Fatty capsule largely developed. Renal tissue slight in amount. Cortical portion not over one line in thickness. Inner surface, pale anæmic. Suprarenal capsules torn in removal from kidney. Vermiform appendix normal. Large intestine shows a deposit of pigment. Small calcareous deposits on surface (external). Small intestine normal. Stomach: Inner surface greenish in color, showing a brown pigmentation. Rugæ well marked. Contents being a greenish fluid, small in quantity. Liver: Weight, 1,330 grams. Dark red in color. Tissues soft and friable. Under surface showed small vesicles, greenish in color near gall bladder, the latter containing 25 stones of various sizes, dark in color externally; internally reddish and soft. Bladder: Small, rugæ well-marked. Contains a small amount of urine. Pericardium opened, no fluid found. Heart: Weight, 410 grams. Deposit of lymph over right side. White clot found in inferior venæ cavæ. Quantity of black blood in left side of heart. Walls of left ventricle very much thickened. Capacity of heart small. Mitral valve contains fibrinous deposits. Aortic valve has calcareous deposits; also the sinuses above. Tricuspid valve normal, sclerosis of coronary arteries. Parietal and visceral layers of pleuræ adherent; also adherent to under surface of ribs. Brain: Weight, 1,235 grams. Lateral ventricles containing small amount of colorless fluid. Vessels of pia injected. Dura mater firmly adherent to skull. Sclerosis of posterior cerebral arteries. Sclerosis of all arteries. External iliac easily crushed and broken beneath the finger.

C. F.
G. P.

SOFTENING OF THE BRAIN.

Degeneration of the arteries, calcareous.

J. McD.; age 68; nativity, Scotland.

Admitted to the United States Marine Hospital, Chicago, Ill., January 10, 1898; died March 2, 1900, at 10 a. m.

History.—On admission patient complained of having had several severe attacks of rheumatism which had confined him to bed.

Physical examination.—Percussion note dull to flat over entire chest wall, except a small area of resonance under the left clavicle. Dullness over the posterior surface of the upper part of both lungs. Rales absent, expiration prolonged, high-pitched bronchial breathing under both clavicles; upper third of both lungs consolidated.

November 8, 1897.—Examination shows condition of lungs to be about the same as noted above.

October 31, 1899.—Patient greatly emaciated, and shows no improvement. Tubercle bacillus not found in sputum after six examinations.

November 2, 1899.—Suffers from considerable pain referred to the region of the liver; relieved by hot packs.

January 13, 1900.—"Phantom tumor" was observed this morning, situated over the lower ribs, right side, which disappeared after briskly rubbing the overlying skin. It was hard and about 9 cm. in length and about 3 cm. in width. This was probably the result of muscular spasm.

February 23, 1900.—Patient unconscious, very restless, constant movement of both arms. Probably a small hemorrhage into the corpus striatum.

February 24, 1900.—Remains in a stupor; condition unchanged. Temperature normal; pulse good.

February 25, 1900.—Under morphine patient rested quietly during the night. Urinated involuntarily.

February 27, 1900.—Gradually failing; unable to take but a small amount of milk.

March 1, 1900.—Still unconscious and failing.

Necropsy (four hours after death).—Body that of a white male; 68 years of age; 72 cm. in length. Post-mortem rigidity developing in the muscles of the jaw and neck; hypostasis on the back. Skin of both legs pigmented, especially over the tibial surface; more marked on the left. Pupils regular, 3 mm. in diameter; annulus senilis on both corneæ. Cæcum, ileum, and omentum bound down by adhesions in the right iliac fossa. On breaking up the adhesions the appendix was found adherent to the mesentery, its tip attached near the ileum, about 6 cm. from the ileo-cæcal valve; adhesions broken with difficulty; length of the appendix 6 cm. Bladder filled entire pelvic cavity and extended into the abdominal cavity; the contained urine was free from odor. Both pleural cavities entirely obliterated by adhesions. Heart: Left ventricle contracted; empty of blood; ventricular wall 3 cm. in thickness; muscle normal in appearance; semilunar valves competent; mitral valve leaflets thickened; calcareous infiltration around the orifice. Right ventricle filled with clotted blood; walls 8 mm. in thickness; muscle normal. Pulmonary valve competent. Ante-mortem clots in the aorta and pulmonary artery. Right lung: Thin fluid exudes on section; upper lobe consolidated; posterior portion of lower lobe consolidated; slight emphysema of anterior portion of lower lobe; apex almost black for a distance of 6 cm. The rest of the consolidated area was of a dark red color; weight, 650 grams. Left lung: Apex consolidated; posterior half of lower and middle lobe involved in hypostatic pneumonia. Kidneys weighed 120 grams and 140 grams, respectively; small and fatty. Suprarenal capsules weighed 5 grams each, and appeared to be normal in condition. Pancreas atrophied; weight, 60 grams. Spleen: Weight, 100 grams; capsule thickened; external or convex surface covered with small yellowish nodules of a cartilaginous consistence, confined to the capsule. Throughout the aorta were numerous patches of endarteritis deformans, especially marked at the origin of its branches, with here and there a calcareous plate, and one or two small ulcers. Liver atrophied about four-fifths the normal size; nutmeg liver. Gall bladder normal. Gall duct pervious. Testicles, prostate, and seminal vesicles normal in appearance. Stomach and intestine empty, but normal in appearance. Brain: Upon removing the calvarium the membranes were found to be normal. The cerebral vessels, especially the basilar and the circle of Willis, were markedly degenerated. Their walls were irregularly thickened, forming a marked obstruction to the cerebral circulation. The softening of brain involved the occipital lobe and the posterior limb of the lateral ventricle, covering an area of about 3 cm. in diameter, in immediate relation to the posterior portion of the corpus striatum, in which were found two small hemorrhages. The substance of brain tissue in the area of softening was of a creamy consistency.

M. K. G.
H. W. S.

ABSCESS OF BRAIN.

J. M. (colored); male; age, 51 years; nativity, Alabama; admitted to United States Marine Hospital, Mobile, Ala., February 7, 1900, suffering from what appeared at the time to be slight hemorrhage into brain, with paresis, but which proved to be an abscess. Died February 10, 1900.

The history of patient was very obscure. It was stated that he had been found lying unconscious on deck of the vessel; there was a slight scalp wound and an ugly cut of left foot; the man was only partly conscious—could be aroused, but could make no connected statement; the condition was not one of acute delirium or of hebetude and somnolence, but rather of delusional insanity; he had a notion, gathered mostly from his family, that he had been poisoned; he also complained of acute pain in the perineum, though no bladder or rectal trouble could be found and there was no obstruction to the flow of urine; a large blister had been placed on abdomen before man entered this hospital. Speech, when attempted at all, was mostly incoherent, thick, and disconnected, owing partly to mental state and partly to partial paralysis of vocal organs. Pupils both contracted, but responded to light. The man had several slight convulsions at different times, and once or twice no pulse could be felt at radial or temporal arteries; the heart responded to strychnia, however, and patient lived for several days after first attack. Patient took nourishment fairly well. Died at 11.35 p. m. February 10, 1900.

Necropsy (*nine hours after death*).—Body that of a tall, male negro, somewhat emaciated; rigor mortis marked; no lividity observable; no discharge from nose or mouth; covering about two-thirds of the abdomen is a large blistered surface from which the skin has peeled. There is a recent wound on external aspect of left foot reaching from ankle joint to sole of foot; the wound appears to have been made by a dull ax or other instrument; cicatrices on both knees; there is a slight infraorbital subconjunctival ecchymosis on left side. In cutting and removing skin from skull cap a slight hemorrhage was found to have occurred over the left parietal bone; the skin was contused, as if the injury had been caused by a fall or blow. There is a supernumerary or extra nipple on left chest wall about 2 inches below the normal one. The body was opened by the usual long incision reaching from chin to symphysis pubis in the median line of body; muscles somewhat pale, adipose tissue slightly developed; no foreign body in abdomen, position of the parts normal, intestines somewhat distended. The arch of diaphragm on each side is between the fourth and fifth ribs. After removing the sternum the lungs came into view; the pericardium is only slightly covered by the lungs; the pleuritic adhesions are not extensive; the pericardium contains 120 c. c. of dark, clotted blood; clot weighed 200 grams; tissues of pericardium stained a dirty dark brown by contact of blood; the heart is about the size of a man's double fist; it is very greatly dilated, the tissue fatty, soft, and easily torn; left ventricle hypertrophied; rupture about 1 cm. long is found in right ventricle; there is also a large clot of blood filling cavity of heart; there is no fluid blood in heart at all; the mitral valves are thickened; the other valves are pale and flabby, but competent; weight of heart, 380 grams; the right lung is somewhat œdematous; left lung congested; otherwise normal; weight of right lung, 460 grams; left lung, 380 grams. Intestines distended with gas; position of parts normal; no fluid in abdominal cavity; around the cæcum and appendix there exist very strong adhesions, indicating that man had at one time suffered from inflammation of these parts. The spleen is a dark, pulpy mass, very easily torn; weight of spleen, 475 grams; right kidney weighs 200 grams; the capsule is easily peeled; the line between cortical and medullary substance is very poorly defined; the left kidney is slightly granular; capsule readily peeled; weight, 150 grams; cortical and medullary substance bear the same relation as in the right kidney. Right supra renal capsule large, hard, and infiltrated; weight 20 grams. Left supra renal capsule is soft or nearer normal; weight 10 grams. Gall bladder contained about 5 c. c. dirty black bile. The liver is dark red in color, very much congested, bleeds freely on section; it weighs 1,800 grams; the cut surface is granular. The soft parts covering skull are divided by an incision carried transversely over the head and reflected back; all the parts are red; over the left parietal bone the parts are much stained and a slight effusion of blood has taken place; the skull cap is very broad, much arched, and very thick; no fracture or depression of bone is observable; on opening the dura mater a considerable amount of pus escaped; all the membranes of the brain are congested, the pia mater intensely so; very small, almost inappreciable, amount of fluid in lateral ventricles; the cut surface of the brain exhibits numerous bloody points; the brain substance seems somewhat softened, this is particularly the case in the left hemisphere; the right side of brain appeared normal; the occipital and temporo-sphenoidal lobes of brain in left hemisphere are occupied by an abscess about the size of a hen's egg; the tissues around the abscess are softened and easily washed away, so its boundaries are somewhat hard to define; for some distance around the abscess cavity the pus boroughed in the meninges; weight of the cerebrum 1,120 grams; weight of small brain 200 grams.

W. P. McI.

PURULENT INFLAMMATION OF MENINGES AND BRAIN.

J. S.; white; aged 26; nativity, Virginia; admitted to the United States Marine Hospital, Baltimore, Md., February 22, 1900; died March 22, 1900.

History.—Both parents died from consumption. Present illness began with a severe chill and pains in the head and back of neck. Was somewhat delirious when brought to the hospital, and hence little history could be obtained. When questioned he would answer only in monosyllables. Complained of severe pain in the occiput and back of neck, and on attempting to move him a certain amount of rigidity of the body was apparent. There were present clonic spasms of the muscles of the upper and lower extremities, irregular in time and increased by noise. Those occurring on the right side seemed more marked. Herpetic eruptions were present on lips and ala of right nostril. Pulse, 86; respirations, 28, modified by the spasms. Patient's bowels were opened by calomel, and mustard applied to the occiput and neck, and later stimulants were used freely. The delirium gradually subsided into a comatose condition; subsultus tendinum appeared, and patient sank into a typhoid state. Had periods of semiconsciousness, during which he could indicate his wants. Hiccoughs set in March 14 and would persist for hours with slight intermissions. On the 17th of March a swelling in the region of the parotid gland was noticed, hard and painful. Gradually sank into a condition of coma vigil, and died March 22 at 8.40 p. m.

Necropsy (*eighteen hours after death*).—General nourishment fair; rigor mortis present; pupils dilated. Heart weighed 281 grams; walls flabby, otherwise normal. Left lung weighed 410 grams; right one weighed 455 grams and adherent to the right pleura and diaphragm. Both lungs presented well-marked hypostatic congestions. Liver weighed 1,185 grams; capsule nonadherent; consistence firm, somewhat congested. Left kidney weighed 200 grams and was larger than normal; right kidney weighed 68 grams; both kidneys seemed normal in structure. Spleen weighed 130 grams. Calvarium removed; skull very thin; pia mater congested; some adhesions between the membranes, and a flaky exudate present between the pia mater and arachnoid, but not extensively distributed. Brain weighed 1,336 grams. On section a marked congestion of all the vessels was noted; a purulent exudate was found in the lateral ventricles; the brain substance was soft and flabby.

M. W. G.
G. P.

VALVULAR DISEASE OF HEART.

Aortic regurgitation.

J. P.; aged 49 years; nativity, Greece; was admitted to the United States Marine Hospital, port of San Francisco, Cal., December 25, 1899, and died February 25, 1900.

History.—Family history was negative. The patient stated he never had any serious illness till his present trouble began. He denied all venereal history. His illness had existed to his knowledge about three months, of which two were spent in this hospital. Patient was then discharged, at his own request, improved; but was readmitted next day. His most marked symptoms were dyspnœa, insomnia from inability to breathe in the recumbent posture, vague pains in different parts of the body, but most marked in the upper part of right chest, swelling of the feet and legs, and an occasional sensation as though about to fall. Physical examination showed the patient pale, somewhat cyanotic, poorly nourished, with swelling of legs and feet. The area of cardiac dullness was markedly increased, especially downward and to the left. The carotid and many of the smaller arteries, as the posterior auricular, showed throbbing pulsations. Auscultation showed a double cardiac murmur, the systolic murmur being most marked at the apex and transmitted into the axilla, the diastolic most marked at the second right interspace, and blowing in character. The heart's action was rapid and irregular, and the pulse dicrotic and waterhammer. The patient seemed to improve a little under treatment at first; but later, about the middle of February, his symptoms all grew worse. His face assumed a continual expression of distress, the heart's action became slow and feeble, the double murmur continuing; his dyspnœa increased markedly; and this, with the increased pains of which he now complained, prevented sleep; he had no appetite, and the swelling of his legs continued to increase. About this time he began to complain of continual pain at the base of the right chest. Examination showed a pleuritic friction sound in this region, with percussion dullness in both axillæ, and at right base, and absence of respiratory murmur, with harsh respiration in upper lobes of both lungs. Large moist râles were heard on left side of chest and in the region around the right nipple. The heart murmur was muffled, distant, and peculiar. Toward the end of February his condition became still more critical in spite of treatment. He secreted exceedingly little urine and complained constantly of "feeling bad." Insomnia, orthopnœa, and distress depicted on countenance. Patient said he had a sensation of impending death. He died at 12.20 a. m. February 25, 1900.

Treatment consisted in the exhibition of tincture of digitalis and strychnine as heart stimulants, and occasionally nitroglycerin; local anodyne applications and morphine for pain; chloral, bromide, and hydrotheraphy for the insomnia; and on account of the suppression of the urine toward the last acetate of potash with pilocarpine and other means to produce sweating.

Necropsy (*ten hours after death*).—The body is that of a fairly well-developed, fairly nourished adult white male. Post-mortem rigidity slight. Lower extremities œdematous. On opening the abdomen 350 c. c. of clear fluid is found. The omentum is normal, and its fat normal in amount. The anterior mediastinum is normal. The pericardium contains about 25 c. c. of straw-colored fluid. The heart weighs 610 grams. The right auricle contains a mixed clot, the right ventricle a large chicken-fat clot. The left auricle and ventricle are filled with fluid blood. The wall of the left ventricle is hypertrophied to twice the normal thickness. The aortic valve is incompetent; the pulmonary is competent. The mitral valve shows a small calcareous plaque on its anterior leaf. There is some atheroma in all the valves and in the ascending aorta. The left pleura is normal; the right considerably thickened, containing a small amount of fluid, with some adhesions toward the base. The left lung weighs 710 grams and is markedly congested, edematous, and pigmented. The right lung weighs 830 grams and shows marked congestion also, especially in the lower portions. The spleen weighs 150 grams, is friable, greatly engorged, and of a brownish-black color. The left kidney weighs 222 grams and shows evidence of passive congestion. Its capsule strips easily. On the external border is a cyst about the size of a hazelnut, containing a straw-colored fluid. The right kidney weighs 190 grams, and resembles its fellow except in the absence of a cyst. The liver weighs 1,950 grams, and is adherent to the diaphragm. In the suspensory ligament is a calcareous plate 4 cm. long and 2.5 cm. wide. The liver itself is greatly engorged with blood. The gall bladder is distended with bile. The stomach and the alimentary tract show marked congestion. The brain weighs 1,282 grams and is edematous. Its membranes are normal.

F. J. T.
W. M. W.
J. M. G.

Microscopic report.—Heart muscles: The capillaries are filled with stagnated blood and the muscle cells and fibers show a marked degree of enlargement. Certain portions of the heart muscle are stained with yellowish-brown pigment.

F. J. T.
J. M. G.

Mitral regurgitation.

P. H., aged 55; nativity, Missouri; admitted to United States Marine Hospital, Memphis, Tenn., March 9, 1900; died May 29, 1900.

History.—Patient gave history of an attack of rheumatic fever four years ago; heart had been giving him trouble about three years; chief symptoms during this time were cough and dyspnœa on exertion. Has been in hospital several times during the last two years, where, with rest and heart tonics, his condition would improve sufficiently to admit of his leaving the hospital for a time. Examination showed heart enlarged and a systolic murmur heard, with greatest intensity at the apex and transmitted to axilla; pulse weak and rapid; radial arteries hard and incompressible; considerable œdema of lower extremities and puffiness of face; urine diminished in quantity, of acid reaction, and contained a considerable quantity of albumen; microscopical examination showed epithelial, hyaline, and granular casts. Patient had been taking digitalis continuously for nearly two years, and although this and other heart stimulants were given freely his condition grew gradually worse, and death occurred about eleven weeks after his admission to hospital.

Necropsy (eighteen hours after death).—Body that of colored male apparently 60 years of age; feet and legs œdematous; abdomen tense; rigor mortis slight; heart weighed 570 grams; walls hypertrophied and all cavities dilated; mitral valve incompetent, the flaps being contracted and thickened; other valves normal; slight atheromatous changes at base of aorta; right pleura adherent posteriorly; both lungs showed passive congestion, but were otherwise normal; right kidney weighed 160 grams; left, 163 grams; tissue firm; capsules nonadherent; dark blood escaped freely from surface of cut section; spleen weighed 155 grams and was adherent to diaphragm and colon; pancreas weighed 95 grams; liver weighed 1,850 grams and presented the faded-leaf appearance of chronic congestion; gallbladder contained 50 c. c. of bile; ducts palish; brain weighed 1,400 grams and was normal; stomach and intestines were congested, but otherwise normal.

D. E. R.

Aortic and mitral.

T. B. W.; aged 32; nativity, England; admitted to United States Marine-Hospital, Stapleton, Staten Island, October 10, 1899. Died November 14, 1899.

Family history.—Father died of heart disease. Two brothers died in infancy. Two sisters died, cause undetermined.

Previous history.—When aged 11 had rheumatic fever. At 12 had typhus fever. Had malarial fever in 1889 while at Savannah, Ga., and several times since at various places, last time two years ago. Some time ago, does not remember exactly when, fell unconscious in a saloon in Savannah and was removed to hospital there, where he remained seven weeks. During damp and foggy weather has felt indisposed. Six weeks ago felt badly and entered Victoria Hospital, Halifax, and remained there twelve days. Left there to ship and came south to port of New York. During international yacht races, while working on one of the excursion boats, was exposed during inclement weather and taken ill; rested on vessel for a while, but not improving any entered this hospital.

Present illness.—Complains of dry cough, dyspnœa, anorexia, can not sleep or lie on left side; has severe pain over left chest, which is aggravated on coughing or deep inspiration.

Physical examination.—Body poorly nourished, markedly anæmic. Respiration rapid, sallow, and chiefly thoracic. Expansion more marked over apices. Expansion left side poor. Left side chest bulging. Carotid pulsations evident. Apex beat diffused. Palpation: Apex beat diffused; fremities absent over lower two-thirds of left lung. Percussion: Flatness over lower two-thirds of left lung; area of liver dullness enlarged; area cardiac dullness enlarged. Auscultation: Respiratory sound accentuated over right lung; bronchial breathing over left apex; absence of respiratory sounds over lower two-thirds of left lung. Has double aortic and mitral murmurs. Heart beat rapid and irregular. Temperature, 37.2; pulse, 90; respiration, 22.

Treatment.—Rest in bed. Milk diet. Fl. ext. cascara sagrada 3 c. c.; morphine sulphate, 0.015; et atropine sulphate, 0.0005, hypodermically at 9 p. m., nitroglycerin, 0.001 every two hours.

October 11.—Slightest exertion brings on attack of syncope; slept four hours during night; bowels moved three times during night. Temperature, 39; pulse, 94; respiration, 20 at 8 a. m. Temperature at 8 p. m., 38.8; pulse, 96; respiration, 22; appetite, poor; milk, peptonized.

October 12.—Does not cough much. Temperature around 37.6; pulse ranges from 86 to 90; respiration about 24; left side ordered prepared for operation of aspiration; bowels moved.

October 13.—Aspirated chest between eighth and ninth ribs in posterior axillary line, and removed 1,200 c. c. of clear straw-colored fluid. Temperature remained around 37.6; pulse varied from 86 to 100; respiration from 22 to 26; no rise in temperature after operation; perspires freely.

October 14.—Felt much relieved after aspiration; breathes easier; pain in left side, which had been severe, less since aspiration; general condition very poor; stopped nitroglycerin and prescribed tr. digitallis. gtts. 10, t. i. d. Temperature ranged around 37.4 during day; pulse varied from 92 to 100, less irregular than it was; slept well during night.

October 15.—Feeling better this morning; stool last night; slept well; pulse small, varies from 90 to 100; temperature normal; added beef tea and soups to diet.

October 16.—No particular change to note.

October 17.—General condition still very poor; not gaining any.

October 18.—Pulse stronger and slower; complaining of pain on left side, which was strapped. ℞ Elixir ferri, quinine et strychnia 5 c. c. t. i. d., p. c.; sleeping fairly well. Stools clay colored. Appetite poor.

October 20.—Temperature running along about normal. Pulse varies from 80 to 84. Vomited last evening and again this morning. Put mustard plaster over epigastrium. Stopped tr. digitalis.

October 22.—Vomiting stopped. ℞ Potassa iodide (saturated solution) 10 drops t. i. d. Still complained of pain on left side. Examination of left side of chest gives sign of fluids. General condition precarious. Temperature running around normal. Pulse ranges around 80.

October 25.—Pulse slow, soft, regular, and of fair quality. Appetite improving. Pain in side continues.

October 28.—Appetite fair; increased diet, adding chopped meat to it. Has not vomited in several days. Pulse 86, soft and compressible. Dyspnœa only on exertion. Increase potassa iodide 5 drops daily, each dose.

October 30.—Complained of dull headache; no vomiting. Bowels active. ℞ Sodii salicylate solution 5 c. c. every 3 hours.

October 31.—No headache; pain in left side less. Temperature about normal. Pulse remains around 84. Appetite poor; feeling fairly well.

November 6.—Did fairly well up to date. Anæmia still marked. Does not take much nourishment. Vomited this morning. Stopped potassa iodide. Pulse fast and small volume.

November 8.—Not eating well. Can not retain food. Ordered innunctions of olive oil, and ordered nutrient enemata. Stop elixir ferri, quin. et strych.

November 14.—Sherry flip and eggnog t. i. d. Gave tonic containing arsenic, iron, and quinine.

November 9.—Pulse fast and weak. Cardiac dullness considerably enlarged downward and to left. Anæmia becoming more profound. Perspires freely. Has headache. General condition worse. Retains nutrient enemata. Coughs some.

November 10.—General condition worse. Pulse weak and rapid. Perspired freely. Takes some nourishment in way of peptonized milk, beef peptonoids, sherry flip, eggnog, etc. Pain in left side not so troublesome. Temperature remains about 37; respirations vary from 18 to 20. Pulse from 84 to 86. Bowels regular. Sleeps fairly well. Cutaneous circulation poor. ℞ Strych. sulph., 0.003 hypodermically, t. i. d.

November 14.—Failed rapidly during night, and this morning showed marked cyanosis. Examination of chest showed pulmonary œdema. Stimulants given, but he failed rapidly and died at 12.35 a. m.

Necropsy (twenty-seven hours after death).—Out of deference to wishes of friends only contents of chest examined. Body male, apparently aged 38; pupils somewhat contracted. Rigor mortis not marked. Posterior suggillations fairly well marked. Has purple mottlings over anterior surface of body. Sternum removed. Anterior mediastinum normal. Remains of thymus gland negative. Heart displaced downward and to left, reaches between sixth and seventh ribs and to left of nipple. Has some recently formed lymph on anterior surface of left ventricle near apex. Heart large and left ventricle contracted. Considerable fluid blood escaped from right side of heart, especially from auricle; large chicken fat clot in right auricle extending into ventricle. Small amount of fluid blood in left ventricle; considerably more in left auricle. Small amount of chicken fat clot in left ventricle. Considerable fluid blood escapes from pulmonary veins and arteries, from vena cavæ and from aorta, and large amount of chicken fat clot extracted from these vessels. Heart weighs 880 grams and is about double normal size. Covered with thin layer of fat. Walls are enormously thickened, those of ventricles being fully twice normal size. Auricles about double normal thickness. Aortic orifice constricted, not admitting one finger. Valves incompetent; tested hydrostatically. Valves are rigid, calcareous, about 0.2 decimeters in thickness, and from amount of calcarous deposit in these have become twisted on themselves—warped, so to speak. Mitral orifice tested hydrostatically and found incompetent. Edges of valves thickened from calcareous deposits. Tricuspid orifice incompetent. Valves negative. Pulmonary orifice and semilunar valves normal. Coronary arteries patent. Pericardium smooth and glistening throughout. Displacement corresponds to heart. Contains about 25 c. c. of clear straw-colored fluid. Left pleura: Adherent to lung in anterior two-thirds and around apex; posterior one-third of pleural cavity and lower two-thirds find cavity containing about 500 c. c. of putrid pus. Walls of this cavity is considerably thickened, walling it off from rest of pleural cavity. Right pleura shows no adhesion; is smooth and glistening and contains about 750 c. c. of clear straw-colored fluid. Left lung: Lower lobe in condition of almost complete atelectasis; does not float or crepitate; upper lobe floats and crepitates, anæmic; weight, 480 grams. Right lung: Weight, 600 grams; floats, crepitates, external surface pigmented; on cut section lower lobes are congested and give frothy exudate. Great vessels and nerve trunks: Aorta show several calcareous plates deposited on intima throughout.

J. M. K.
G. W. S.

Aortic regurgitation and mitral regurgitation.

U. N. Q.; aged 55 years; nativity, North Carolina; admitted to the United States marine hospital, Baltimore, Md., October 12, 1899; died December 24, 1899.

The patient had received treatment from the service at Norfolk, Va., from August 15, 1899, until transferred to this hospital. The following notes of the case were furnished by the medical officer at Norfolk:

"Examination of urine: Specific gravity, 1.026; reaction, acid; color, dark, cloudy, and contains sediment and albumen. Medication: Digitalis and strychnine. Dyspnœa continues; œdema pronounced in the lower extremities; urine scant and blood circulation poor."

Upon admission to hospital at Baltimore the following history was obtained from the patient: His mother died with tubercle of the lungs; the cause of his father's death is unknown. Personal history as to previous habits of living is good. He has passed through one attack each of enteric and malarial fevers, so far as could be learned, without serious complications or lasting bad effect. During January, 1899, he contracted a severe cold with cough, and expectorated freely a thick mucus; shortly thereafter he noticed some swelling of his feet, and was easily exhausted after exertion. At present anasarca is conspicuous and respiration difficult. The apex beat of the heart is displaced downward and to the left; the area of heart dullness is increased in all directions, and murmurs are heard over the entire cardiac area. The most distinct murmur is diastolic, and is heard in the left second intercostal space, near the left border of the sternum, also in the second right intercostal space. A diastolic murmur can also be heard at the apex of the heart. The pulse is fast and intermittent. The patient is drowsy and sleeps much of the time. The superficial arteries are tortuous and rigid. The patient finally sank into a comatose condition, and died December 24, 1899.

Necropsy (nine hours after death).—Rigor mortis well marked; post-mortem lividity well marked; tissues generally œdematous. The pleural cavities each contain from 500 to 700 c. c. of clear straw-colored fluid. Several firm fibrous bands extend across the right pleural cavity. The pericardium is apparently normal, and the sac completely filled by the heart, which is greatly increased in size. The heart weighs 630 grams; the right ventricle contains a chicken-fat clot; the left ventricle contains dark clot. The aortic valves were thickened, their edges slightly curled, and did not stand the hydrostatic test. The mitral valve was also incompetent. The aorta was dilated; its intima rough and atheromatous. Located about 6 cm. above the valve segments in the aorta there is an erosion in the intima on the upper wall which readily broke through that coat on slight pressure, exposing the middle coat, which was broken down within an area of 1 cm. square, and appears to be the site of the beginning of the disintegration of the coats of the vessel. The left lung weighs 440 grams, and is congested. The right lung weighs 515 grams, is splenified from the constant pressure of the fluid in the pleural cavity. The liver weighs 1,395 grams, and cuts with considerable resistance. The gall bladder contains 7 gallstones about the size of a buckshot. The right kidney weighs 210 grams. The left kidney weighs 245 grams. Both kidneys are sclerotic, and cut with increased resistance. The larger blood vessels of both kidneys are rigid and show atheromatous changes. The left kidney contains within the pelvis a cyst about the size of a pigeon's egg. The brain weighs 1,100 grams, and contains a slight excess of fluid in the ventricles. The vessels of the brain show atheromatous changes.

T. B. P.
G. P.

Mitral.

E. M. (colored); age, 26 years; nativity, Illinois; admitted to the United States Marine Hospital, Cincinnati, Ohio, January 15; died January 31, 1900.

History.—Family history—father died of heart trouble; mother dead, cause unknown. Previous history—patient had an attack of inflammatory rheumatism when 17 years old, otherwise always healthy. Denies syphilis; admits use of tobacco and alcohol. Present illness first noticed about four weeks ago; began with shortness of breath, increased on exertion, palpitation, cough, tightness in legs (especially in the mornning), feet and ankles soon beginning to swell.

Physical examination.—Patient well nourished and quite muscular. Slight œdema of feet, ankles, and legs. Chest—lungs negative. Heart—impulse quite forcible, apex beat displaced downward and to left, area of dullness increased transversely, rough systolic bruit heard best over mitral area, and is transmitted to axilla. Pulse very irregular, and markedly intermittent. Dyspœna great, cough ringing, and metallic. Urine—first day after entrance urine was scanty in amount and albuminous; succeeding examinations, normal. Notwithstanding treatment, compensation remained broken, patient dying suddenly January 31, 1900.

Necropsy (*twenty-one hours after death*).—The body that of a well-developed, muscular negro; rigor mortis present. The lower extremities pit slightly upon pressure. Chest: Pluræ and lungs normal, right lung weighing 600, left lung 480 grams, Heart: Pericardium adherent, a pericarditis, dry plastic form present. Heart covered with a shaggy coat of fibrin, greatly enlarged, left side showing marked dilatation and hypertrophy; weight, 780 grams. Mitral valve incompetent, the leaflets presenting thickened, contracted edges and covered with vegetations. Several of the chordæ tendineæ were found ruptured; the severed ends bulbous and covered with vegetations. The endocardium showed atheromatous plaques. All other valves competent. Medium-sized ante-mortem clot found in right ventricle. Abdomen: Liver and spleen found to be enlarged and congested; weights 1,710 and 330 grams. Kidneys congested, otherwise normal; weight, 210 grams each. Other organs normal.

H. S.
J. M. E.

W. M.; nativity, New York; age, 60; admitted to United States Marine Hospital, Port of New York, December 1, 1899; died January 25, 1900.

Family history—negative. Previous history—typhoid fever in 1864, gonorrhœa twice, rheumatism in both shoulders two years ago.

Present condition.—Has been complaining for the last three weeks of shortness of breath, tight cough, inability to sleep, nervousness, general weakness, night sweats, and pain in region of heart. Has for years been troubled with attacks of vertigo. Physical examination: Inspection—expansion of chest good and equal. Auscultation—diastolic murmur is heard at the base over the aortic orifice which is propagated toward the ensiform cartilage. Lungs—negative. Percussion—heart enlarged. Palpation—negative. Treatment—symptomatic.

December 21.—Began to complain of pain in left side.

December 27.—Cough troublesome, expectoration difficult.

December 28.—Condition about the same, troubled with insomnia.

December 29.—Slept some after taking sulfonal; respiration difficult; pulse weak and rapid. Tinct. digitalis prescribed.

December 30.—Breathing better, appetite poor.

December 31.—Constipated, slightly jaundiced; sodii phos. prescribed.

January 1, 1900.—Inclined to sleep, pulse 84, respirations 30, temperature normal. skin yellow, stools clay colored, passes normal amount of urine; sodii phos. continued.

January 7.—Jaundice not so marked.

January 11.—Had a bad night, troubled with cardiac sleep starts. Infus. digitalis increased to 12 c. c. t. i. d.

January 12.—Rested better last night.

January 18.—Vomiting food, pulse 68 and irregular, temperature 36.2, respiration 26.

January 19.—Legs œdematous.

January 22.—Stomach irritable, unable to retain nourishment.

January 23.—Has passed only 12 ounces of urine in 24 hours; breathing shallow, forced, and fast, lower extremities becoming more œdematous.

January 25.—Expectoration of dark-red clotted blood continues. Tongue covered with reddish coat, temperature subnormal, respiration 26, pulse very irregular. Died at 5.50 p. m.

Necropsy (*forty-four hours after death*).—Body that of a male 60 years old. Rigor mortis well marked. Suggilations in most dependent parts of body. Both lower extremities swollen. Large amount of subcutaneous fat over thorax and abdomen. Arch of the diaphragm found at the fourth rib on left side and at sixth on right. Muscles of thorax well developed, ant. Mediastinum normal. Thymus gland absent. Pericardium is white and glistening, 30 c. c. fluid. Heart enlarged and displaced downward and to the left, weight 515 grams. Anterior surface covered with fat. Left ventricle firmly contracted, veins of heart injected, cavities contain a large amount of dark blood. Myocardium pale and flabby. Left auricle and ventricle dilated and hypertrophied. Mitral and aortic valves are small, thin, and show numerous calcareous deposits at their bases; on applying water test neither the aortic nor mitral valves close completely. Right auricle and ventricle normal; likewise the valves. Left lung, weight 485 grams; lower lobe soft and crepitant. Apex of lungs congested and on section is dark red, and a reddish-black fluid oozes out on pressure; tears easily. Right lung, weight 520 grams; numerous adhesions to pericardium and pleura; is normal in appearance. Great vessels and nerves of thorax are normal excepting the aorta, which is enlarged and atheromatous. 400 c. c. of pale fluid found in abdomen. Omentum normal. Mesentery injected with venous blood. Spleen weighs 155 grams and is soft. Right kidney weighs 150 grams, cortical area small, is soft and fatty. Capsule nonadherent. Left kidney weighs 180 grams, and in appearance is the same as the right. Bladder and urinal organs normal. Rectum empty. Duodenum and intestinal tract is dark-blue in color and is distended with gas. Stomach normal. Gall bladder enlarged and filled with a dark fluid; contains a gallstone weighing 2 grams. Gall ducts and pancreas normal. Liver, weight 1,200 grams; numerous adhesions to diaphragm, capsule is adherent, section shows fatty changes. Mesenteric glands small. Abdominal vessels negative.

G. A. C.
G. W. S.

Degeneration of arteries; arterio-capillary fibrosis—All valves of heart insufficient.

J. R. B., age, 65; nativity, Illinois; admitted to United States Marine Hospital, Chicago, Ill., November 20, 1899; died May 7, 1900.

On admission, patient stated that about six weeks previous he had become markedly constipated and then lost his appetite; that his bowels would not move unless he took cathartics; and that he suffered severe pains in his left side. He was extremely emaciated, and on examination there was marked dullness over stomach and liver. There also was marked atheroma of the large vessels. He had been drinking constantly for six weeks prior to admission. Several times after admission his feet became œdematous, and once his abdomen became distended by gas, which subsided in a few days. His urine was found to be normal. The treatment consisted of cathartics as required to move bowels, tonics and stimulants, and such light diet as he could easily assimilate. At morning sick call May 7 the patient stated that he felt nicely, but in the afternoon, upon attempting to reach for something on his table, he immediately collapsed. When he recovered consciousness, about fifteen minutes later, he complained of excruiciating pain in the lower part and left side of his abdomen, and said that he felt as though something had broken inside. He attempted to evacuate his bladder and bowels, but was unable to do so. His urine then was drawn off by a catheter, and an enema of glycerin and water was followed by the evacuation of only a few small, hard, round masses of fecal matter. Within the hour he suffered two more periods of collapse and died within two hours. Strychnine sulphate and nitroglycerin were given hypodermically without effect.

Necropsy (*twenty-two hours after death*).—Body, that of an old and extremely emaciated male, limbs apparently fleshless, cheeks much sunken. Abdomen much distended, but flat on percussion. Rigor mortis present throughout; no suggillation present. On opening the pericardium about 30 c. c. of serous fluid was found. Heart small, pale, and flabby, and weighed 200 grams. Valves were all insufficient, having undergone atrophy, and the chordæ tendineæ could be easily broken. Walls of right heart were thin and flabby; those of the left ventricle somewhat hypertrophied. Walls of aorta and all other arteries were thickened and sclerosed. The pleuræ were found to be adherent in places, especially at the lower portions; no fluid was present and the lungs were collapsed. The lungs were of a dark color, the upper lobes almost black, being the seat of carbonaceous deposits. The lower lobe of right lung was much congested, pitted on pressure, and on section exuded much blood and frothy matter. Left lung weighed 400 grams and the right 520 grams. Liver weighed 1,180 grams. At the posterior border of the right lobe there were several small tumors, the largest being the size and shape of a walnut. These were hard, dense, and difficult to cut, and on section presented the appearance of cartilage. The tissue around was hard and congested. Stomach weighed 250 grams. Its walls were thickened and the mucous membrane was of a brownish color, elevated into ridges, and covered with a greenish, thick, slimy, and tenacious mucus. Spleen weighed 100 grams and was much harder than normal. The left kidney weighed 130 grams. The capsule was thickened, opaque, and somewhat adherent. Its lower end was the seat of a large transparent cyst, which contained about 30 c. c. of a slightly yellowish fluid. On section the tissue was tough and resistant; the cortical portion was very thin; the connective tissue was greatly increased, and the kidney indurated and contracted; the color was yellowish gray. The right kidney weighed 180 grams; capsule easily detached and more opaque than normal. The kidney was congested, and of a bright red color throughout; tissue easily cut. Impossible to distinguish the pelvis, medulla, and cortex. The bladder walls were greatly thickened, being about 8 millimeters in diameter, and its internal surface was ribbed in appearance. The mucous membrane was thick, blue gray in color, and very tough; prostate much atrophied. The whole of the colon was distended with fæces. Two perforations were found, each about 12 millimeters in diameter; one was in the inner side and about midway of ascending colon; the other was in the lower wall and about midway of transverse colon. The peritoneum was dull and opaque, but otherwise normal. Rectum hard, contracted, and cartilaginous, and the seat of strictures throughout its whole length. At its largest portion it was not more than 8 millimeters in diameter; its walls were about 6 millimeters in thickness and gristly. In it were several small, round, and very hard scybalæ. The small intestines, spleen, and pancreas were bound tightly together by adhesions around a small, hard, white mass, similar to those found in the liver.

After dissecting out the spleen, it was impossible to demonstrate the pancreas. The brain weighed 1,320 grams and was apparently normal.

B. H. E.
H. W. S.

W. M.; aged 37 years; nativity, Tennessee. Admitted to United States Marine Hospital January 24, died March 2, 1900.

Three or four days ago began to feel sick. Has been in bed, aboard boat, last two days. Legs began to swell, and he became short winded. Never had rheumatism. Never had an attack like this before. Has dry, hacking cough. Legs, hands, face, penis, and abdomen swollen. Ascites present. Dyspnœa marked. Pulse rapid and compressible. Says he has been "making plenty of water," as much as usual. Denies syphilis, but has suspicious cicatrices on chest, arms, and legs. Physical examination reveals greatly dilated heart, mitral regurgitations, and aortic stenosis, pericarditis. Some pulmonary œdema and hydrothorax; heart still regular, however. Ordered to bed and strictly forbidden to sit up. He can breathe readily lying down. Tr. digitalis 0.66 gram and spts. ammon. arom. 3 c. c. q 3 h. during the night.

January 25.—Feels easier, but there is not much material improvement in local condition. Tr. digitalis 0.78 gram; nitroglycerin 0.0006 gram. Sig. q 3 h. night and day. Flaxseed poultices over heart q 3 h. Milk diet. Pulv. opii 0.06 at bedtime. Liver is hypertrophied, bowels are loose, assisting in elimination of water.

January 26.—Some material improvement. Œdema gone except in abdominal wall.

January 27.—Dry cough almost gone. Pericardial friction murmur less marked. Less œdema of abdominal wall. Pulse rate lower.

January 28.—While satisfactory in every other particular, there is intermittent cardiac action to-day for the first time. Nitroglycerin discontinued temporarily.

January 29.—Sulphonal, 1 gram at 9 p. m.; discontinue pulv. opii at 9 p. m. Condition slightly improved since yesterday; pulse intermits less frequently.

February 3.—Digitalis seems to be losing its effect, discontinued, and strych. sulph. ordered 0.002 gram q 3 h.

February 10.—As soon as distressing symptoms disappeared, this patient imagined he was all well, and persistently disregarded orders to remain in recumbent position. At no time has he had orthopnœa and is easy and comfortable in bed; nevertheless, I have frequently, upon entering the ward unexpectedly, found him sitting up, walking about, or running to his bed upon hearing footsteps in the hall. He also uses tobacco in large quantities, also contrary to orders. Have tried to impress upon him the gravity of his condition, but he appears mentally incompetent to grasp the situation. He has denied syphilis, but feeling assured he has had it, have put him on iodide of potassium.

February 19.—Patient will improve to a certain degree, and then his condition remains stationary. Given tr. digitalis again, small dose, 0.33 gram, with strychnine sulph. 0.001 gram, q 3 h. Œdema, ascitis, and hydrothorax disappeared. Patient allowed to sit up.

February 24.—Patient intended to leave the hospital to-day, but œdema of ankles has returned and he was advised to remain until his condition should justify his discharge. Pulv. opii, 0.06 gram, at 9 p. m. Hot applications over heart renewed. Cardiac compensation, restored for a time since residence in the hospital, can not be maintained.

February 26.—Patient's condition is now as bad as on admission; still he disobeys orders.

February 28.— Condition very critical. Œdematous from head to foot. Transudation of serum within thoracic cavity compromises lung expansion; hydrothorax worse than at any time since admission. Spts. frumenti 16 c. c. q 4 h., alternating with digitalis.

March 1.—Extremities cool. Mind clear. Condition hopeless.

March 2.—Died 12.05 a. m.

Necropsy (*fourteen hours after death*).—Body well nourished. Rigor mortis well marked except in arms. Œdema general from head to foot, including penis, scrotum, eyelids, face, neck, etc. Tongue grasped firmly between clenched teeth. Pupils evenly dilated. On opening abdominal cavity, 1,500 c. c. of free fluid, serous, clear, amber-colored, escaped. This serum was odorless. There were no peritoneal adhesions. Abdominal wall 2 cm. thick. On opening the thoracic cavity a quantity of similar fluid escaped before it could be collected. This fluid interfered materially with free expansion of lungs. No abnormalities of anterior mediastinum. The heart was hypertrophied and its cavities filled with blood. "Chicken fat" clot in right auricle and ventricle. Post-mortem clot in left ventricle. Dimensions of heart, 15 by 13 by 6 cm.; weight, 780 grams. Mitral valve incompetent. Both mitral and aortic valves covered with vegetations. Calcareous plates in aorta were numerous. Thickness of wall of right ventricle, 0.75 cm.; of wall of left ventricle, 2 cm. Pericardial fluid not greatly in excess of normal. Pericardium roughened. No adhesions of pericardium. No pleural adhesions. Free fluid in pleural cavities as above noted. Lungs collapsed, passively congested, pigmented. Right lung weighed 725 grams; dimensions, 20 by 18 by 6 cm. Left lung weighed 720 grams; dimensions, 20 by 15 by 6 cm. Lungs in fairly good condition. Spleen weighed 500 grams. Dimensions, 14 by 9 by 4.5 cm. Small supernumerary spleen about the size of a marble attached to under surface of spleen by thin pedicle. Pancreas weighed 210 grams. Right kidney weighed 250 grams; dimensions, 12 by 7 by 3.5 cm.; thickness of cortex, 1 cm. Left kidney weighed 266 grams; dimensions, 12 by 7 by 4 cm.; thickness of cortex, 1.5 cm. Both kidneys larger than normal, and were distinctly lobulated and pale in color. Appendix 14 cm. long; no abnormalities. Stomach and intestines normal. Brain not examined.

J. M. H.

Aortic and mitral.

G. M.; aged 50 years; admitted to the United States Marine Hospital, port of Wilmington, N. C., June 8, 1899, and died August 6, 1899.

History.—No disease of childhood. Had syphilis twenty years ago; twenty-two years ago had an attack of Java fever in Calcutta. No history of rheumatism. Heart symptoms were first noticed during the attack of Java fever. Mother died with heart trouble. Brothers and sisters living, and well. Present attack began with Java fever, then developed swelling of feet; at same time had ulcer of leg; after that, vertigo, flashes of light, headache, pains in pericardial region, and spitting of blood occurred from time to time. For the past year has had troublesome cough and shortness of breath. A short while ago had slight paralysis, involving the right half of tongue. Œdema of legs and feet very marked. Examination of urine showed a trace of albumen, no tube casts present. Heart: Systolic murmur heard at all valve points. A short while before death examination showed hypertrophy and dilatation, action weak and irregular.

Necropsy (*nineteen hours after death*).—General œdema, muscles poorly developed, rigor mortis, well-marked adipose tissue, slight amount calvarium removed; dura normal. Brain apparently normal in every respect; weight, 1,650 grams. Thoracic cavity: Pericardium contained about 30 c. c. fluid, heart greatly enlarged, dark-red color. Aortic valves thickened and incompetent. Mitral orifice enlarged and contained numerous calcareous deposits; valves incompetent. Pulmonary valves thickened and incompetent; contained calcareous deposits. Heart weighed 980 grams. Lungs: Position normal; both pleura adherent posteriorly; both lungs œdematous and congested throughout; weight of right, 1,100 grams; weight of left, 940 grams; about 150 c. c. fluid in peritoneal cavity. Stomach small; weighed 310 grams; appendix very small; intestines distended with gas. Liver: Somewhat enlarged; surface smooth; color dark red; section showed chronic congestion; gall bladder contracted; liver weighed 2,060 grams. Spleen: Congested throughout; weight, 450 grams. Kidneys: Both congested; capsule slightly adherent; weight of each, 240 grams.

W. H. L.

Mitral and aortic regurgitation.

W. N.; aged 45 years; nativity, England; was admitted to the United States Marine Hospital, port of San Francisco, Cal., July 12, 1899, and died February 1, 1900.

History.—Family history was negative. Patient denied syphilis or rheumatism, and stated that he had never before had any serious illness. He had been a soldier in the early part of his adult life, and for some years had worked on steamships as a fireman. He had used alcohol moderately. The first symptom he noticed of his present trouble was pain in the region of the ensiform cartilage, which began about two months before the patient came to the hospital, but did not cause him any great discomfort. Later he had an attack one night, characterized by very severe pain in the precordium, profuse sweat, dyspnœa, fear of death, and finally falling, without loss of consciousness, the attack lasting about two hours. The evening before entering hospital he had another similar attack. At that time he was also suffering from diarrhea. Physical examination showed patient to be well-developed and well-nourished. The chest was somewhat barrel shaped, its expansion subnormal, and there was slight dyspnœa. The peripheral arteries showed marked pulsation, the beat being irregular in force and frequency. The apex beat was diffuse and wavy, visible in the fifth and sixth intercostal spaces, and most marked in the mammary line. Percussion showed some hyperresonance all over both lungs, except at the left base, where was a small area of movable dullness. The cardiac area of dullness was enlarged. Over the aortic orifice a loud, blowing, double murmur was heard, transmitted into the carotids. After admission the patient suffered every few days from attacks similar to the one first described, lasting as a rule from one to two hours; but after about the middle of August, 1899, these became gradually less frequent and less severe. Examination by the Roentgen ray, on August 26, 1899, showed the heart to be enormously enlarged. A reexamination in September, 1899, showed a double murmur at the apex transmitted into the axilla, in addition to the one at the aortic cartilage, transmitted into the carotid and subclavian arteries. The movable dullness at the base of the left lung was by this time greatly increased. On September 29, 1899, the left pleura was aspirated and nearly 3 liters of simple serum withdrawn. After this date aspiration had frequently to be resorted to, until the end of December, 1899, when the effusion seemed to have ceased. The patient's appetite about this time became exceedingly poor, and he began to grow much weaker in consequence. Toward the end of January, 1900, he began to suffer from diarrhea and soon afterwards from frequent attacks of vomiting, with violent pain in the abdomen and dyspnœa, coming on as a rule on defecation or urination. Insomnia had been a troublesome symptom for some time; now there was orthopnea. Examination of lungs shows areas of dullness and numerous moist rales. On February 1, 1900, the patient collapsed after a very severe one of the above attacks, at 9 p. m. He rallied for a short time under strong stimulation, but died at 10.45 p. m.

Treatment consisted in the use of various heart stimulants, as digitalis, strophanthus, strychnine, and caffeine. Nitroglycerine was used for his severe attacks, and morphine and local applications for the relief of pain. Hoffman's anodyne was given a trial, but seemed to increase his distress. The various minor ailments that arose from time to time were treated symptomatically. Temperature was normal throughout.

Necropsy (*fourteen hours after death*).—The body is that of a well-developed but markedly emaciated white male. Post-mortem rigidity is marked; post-mortem staining slight. The left pleura contains some excess of fluid. There are some adhesions over the lower lobe of the lung at the site of former punctures for aspiration. The right pleura contains fluid in excess, but has no adhesions. The pericardium is normal, and contains a normal amount of fluid. The heart is enormously enlarged, and weighs 870 grams. The aortic and pulmonary valves are both incompetent. Upon applying the water test to the aortic valve its segments leave an opening in the center large enough to admit a lead pencil. Same test of tricuspid valve shows failure of leaflets to close the orifice on account of dilatation of auricle. The walls of the left ventricle are twice their normal thickness. The segments of the mitral valve, as also of all the other valves, are markedly thickened and atheromatous. The chambers of the right side of the heart are enormously dilated and somewhat hypertrophied. The aorta throughout shows various stages of atheroma, resembling an alligator hide. The ascending aorta presents calcareous deposits, forming bony rings round its entire circumference, giving a distinct click on striking with a knife. Intermingled are areas of atheromatous ulceration. The left lung weighs 665 grams. Its pleura is much thickened. Its lower lobe is œdematous and in a state of brown induration. Its upper lobe is in a condition of hypostatic congestion. The right lung weighs 780 grams, and shows alternating regions of brown induration and hypostatic pneumonia. The spleen weighs 230 grams, and is enlarged and firm. Its capsule strips easily. Section shows the interstitial tissue to be increased. The left kidney weighs 165 grams. It is slightly pale, but otherwise normal. Its capsule strips easily. The right kidney weighs 165 grams, and resembles its fellow. The liver weighs 1,770 grams. Its substance is very firm, and shows large increase in its interstitial structure. There is also evidence of slight fatty change.

M. E. S.
F. J. T.
J. M. G.

C. B.; age 45, native of Virginia; admitted to marine hospital, Baltimore, Md., July 22, 1899; died October 25, 1899.

Family history, negative. This man was transferred from Norfolk, Va., where he had been treated for valvular disease of the heart. He gave the following history: About five years ago his feet and testicles became swollen; he says that a doctor at Mobile, Ala., tapped his scrotum, relieving him, the swelling subsiding for several months. In November, 1898, he was shipwrecked off the Newfoundland Banks and was in the water two days and one night; a few weeks afterwards his legs began to swell again; he also says he has been troubled with shortness of breath and palpitation of the heart since his first attack. On admission to hospital, July 22, 1899, physical examination revealed the following: Both lower extremities œdematous and pitting on pressure; skin dry and harsh; considerable ascites. Examination of heart revealed an aortic and a mitral murmur, both insufficiencies; area of heart dulness increased, extension greatest toward the left; apex lower and to left of normal. Urine analysis: 800 c. c. passed in twenty-four hours; acid in reaction; specific gravity, 1.010; albumen abundant. Treatment: Infusion digitalis, 12 c. c. three times daily. On night of July 24, patient was very restless and complained of great pain in bladder when he attempted to urinate. He was given a hypodermatic injection of morphine sulphate, 0.02 gram, and potassium citrate, 0.6 gram, was ordered given every three hours. August 10, patient complained of great shortness of breath, and said he felt as though a large lump was in his stomach; he was given a hypodermatic injection of morphine sulphate, 0.02 gram. On August 15 pus was found in his urine and bladder; was washed out with a 10 per cent boric-acid solution. But little change occurred in his condition until October 15, when he began failing rapidly, and death occurred on the morning of October 25, 1899.

Necropsy (*four hours after death*).—Male; well nourished; muscles of upper extremity firm; lower extremities much swollen and pitting on pressure; skin dry and harsh. On removing the calvarium the brain was found somewhat injected, but otherwise normal in appearance and consistency; weight, 1,060 grams. On opening the abdominal cavity it was found filled with clear fluid; abdominal muscles also injected with clear fluid. On opening the thoracic cavity the heart was found to fill the greater part of the opening. Pericardium was opened and found filled with clear fluid; visceral surface was much injected; heart very large, and coronary veins distended with dark fluid blood. Right ventricle opened; filled with blood; walls very thin; columnæ carnæ and chordæ tendinæ greatly thickened. Right auricle ruptured in pushing heart to one side; walls extremely thin. Left ventricle and auricle same as right, except that walls were a little thicker; antemortem clots in left auricle; all valves affected and leaking; weight of heart was 940 grams. Pleural cavities opened and found to contain about 100 c. c. of clear fluid; right lung but little changed and normal in appearance. Left lung crowded into posterior part of cavity by heart; lower lobe congested; at apex several grape-like projections of air vesicles were found filled with air and very thin; weight of left lung, 395 grams. Abdominal cavity: Intestines normal in appearance and containing fæces and gas; stomach contained about 300 c. c. of dark coffee-colored fluid; rugæ greatly thickened and congested, as was mucous membrane throughout organ. Liver large and congested; bile stained on section; weight, 1,510 grams. Spleen congested and friable; weight, 210 grams. Left kidney: Capsule adherent; cortical area thin; fatty throughout; pus in pelvis; weight, 210 grams; right same. Bladder contained about 150 c. c. of fluid, consisting very largely of pus and mucus; also a good deal of sediment; mucous membrane of bladder very much congested and the walls thickened.

G. M. C.
G. P.

Aortic and mitral.

G. T.; aged 66 years; nativity, New York; admitted to United States Marine Hospital, Wilmington, N. C., May 30, 1896; died September 17, 1899.

History.—Had an attack of yellow fever in 1846, and since that time has had frequent attacks of malaria. Denies any venereal history. In 1893 had an attack of rheumatism. Admitted to this hospital August 5, 1893, with diagnosis of aneurism of arch of aorta. Discharged December 17, 1894, for being drunk and disorderly, and again admitted May 30, 1896, with diagnosis of valvular disease of heart, mitral, and anasarca of legs. Physical examination showed marked irregularity of the heart's action, a blowing murmur was heard most distinctly at the apex, varying in intensity. No evidences of an aortic aneurism. Feet and legs remained swollen throughout.

Necropsy (*twelve hours after death*).—Rigor mortis well marked; general anasarca; thoracic cavity opened. Contained a great amount of fluid. Pericardium filled with fluid. Right and left pleura normal. Heart hypertrophied and dilated. Aortic valves somewhat thickened and were incompetent. Mitral valves thickened and incompetent. Mitral orifice admits 3 fingers. Heart weighed 570 grams. Left lung shows evidence of pulmonary emphysema. Pleural adhesions posteriorly at apex. Weight of left lung, 560 grams. Right lung: Lower lobe adherent to diaphragm; pulmonary œdema; weight, 760 grams; bronchioles thickened and contained pus. Spleen was hard, small, and congested; weighed 140 grams. Left kidney congested; capsule nonadherent; weighed 180 grams. Right kidney congested; capsule nonadherent; weighed 170 grams. Omentum injected. Liver small and hard. Gall bladder distended. Liver weighed 1,580 grams. Left lobe adherent to diaphragm; chronic congestion throughout. Stomach, small and empty. Post-mortem digestion well marked; weight, 170 grams. Calvarium opened, and the pia was found to be adherent to the dura. Brain weighed 420 grams. General diffused endarteritis.

W. H. L.
C. P. W.

Mitral and aortic insufficiency.

J. K.; white; aged 52; nativity, Connecticut; was admitted to the United States Marine Hospital at Baltimore, Md., February 10, 1900, and died April 8, 1900.

History.—Parents both died when patient was a child. Complains of an epigastric pain and paroxysmal dyspnœa, aggravated by exertion; has some cough with a blood-stained expectoration. Examination showed slight amount of œdema of feet and ankles; apex beat displaced downward and to the left; visible pulsation of the superficial arteries and characteristic water-hammer pulse. Area of heart dullness increased to the left and downward; systolic murmur heard over apex and transmitted to the axilla; also a diastolic murmur, best heard over the second right intercostal space and transmitted down the sternum. The percussion of the lungs gives slightly impaired resonance; sibilant and sonorous râles and small mucous râles heard over both lungs; on the left side a friction sound present in the lower axillary region. On March 15 an accumulation of fluid was noticed in the abdominal cavity; respiration became more embarrassed, and the daily secretion of urine diminished. General anasarca followed, and the patient died April 7, 1900, at 2 p. m.

Necropsy (*twenty-four hours after death*).—Rigor mortis disappearing; post-mortem lividity well marked; pupils dilated; tissues infiltrated with fluid. The heart was greatly enlarged, weighing 830 grams; right auricle adherent to pericardium; the walls were greatly thickened, especially the left ventricle, and the cavities dilated; the aortic valves were hard and thickened, and were incompetent, as also the mitral valve; the aorta presented an atheromatous condition; all the cavities were filled with chicken-fat clot; venous system engorged. Right lung weighed 1,150 grams; left one, 1,075; both bound to the chest wall by a number of pleuritic adhesions, and presented evidences of hypostatic congestion. The abdomen contained a large amount of a straw-colored fluid. Liver weighed 1,750 grams, and presented the appearance of a typical "nutmeg" liver. Kidneys were pale and granular, left weighing 175 grams; right one, 225 grams. Spleen weighed 350 grams, and was congested. Brain weighed about 1,500 grams, and was normal.

M. W. G.
G. P.

J. V.; age 53 years; born in Ohio; was admitted to United States Marine Hospital, Detroit, Mich., October 23, 1899; died January 11, 1900.

Was a strong, healthy looking man. At intervals, for last five years, been troubled with shortness of breath. No previous medical treatment. On admission to hospital was suffering with severe dyspnœa, anasarca of scrotum and lower extremities. No ascites; coughed considerably; moist râles very loud, with slight dullness over lungs, rather more marked at base. Heart sounds were obscure at first. At subsidence of œdema heart was found to be greatly enlarged, with apex in the sixth interspace, and outward nearly to anterior axillary line. The beat seemed to be diffused and rather indistinct. At first, murmur not audible, but second sound was intensified. Treatment palliative, and patient's general health improved. On November 11 had an attack of syncope, without becoming unconscious. Attack lasted about one hour, and heart much weaker. Attack was repeated the following day.

January 5, 1900.—Pains increased in frequency and severity over heart region. Was delirious and noisy twenty-four hours before death.

Necropsy (*eighteen hours after death*).—Body that of a large, well-nourished man. Ordinary rigor mortis, with considerable congestion of the neck and shoulders. First three toes of left foot missing. Brain was removed and showed all the sinuses filled with dark blood. Brain normal in appearance, weighing 1,530 grams. Thorax opened. Lungs normal in size and slightly mottled. Upon section seemed to be sound, except that bronchi and bronchioles contained a considerable quantity of bloody serum. Right weighed 870 grams; left, 650. A few pleural adhesions on left side. At base of pericardial sac were several large vegetations, probably remains of pericarditis. Pericardium contained 150 c. c. of fluid. Heart in situ was found to be greatly enlarged. Upon removal was found to contain both ante and post mortem clots, and when opened was found both concentrically and eccentrically enlarged. Leaflets of valves normal in condition. Both insufficient in function, owing to the enormous dilatation. Heart muscle, especially of left heart, was in state of fatty degeneration and exceedingly fragile; weight, 760 grams. Liver was adherent to diaphragm; very hyperæmic and intensely congested; otherwise normal; weight, 2,050 grams. Gall bladder moderately distended. Stomach adherent in several places to left lobe of liver; otherwise normal; weight, 220 grams. Spleen normal; weight, 170 grams. Kidneys in good condition; capsule easily removable. Weight of each, 200 grams. Pancreas was adherent to stomach and omentum and intestines. Upon section, naked-eye appearance normal; weight, 95 grams. Other organs normal.

J. W. A.
J. G.

ATHEROMA AORTA: CIRRHOSIS LIVER; NEPHRITIS, CHRONIC.

Aortic and mitral obstruction.

G. N.; aged, 50 years; nativity, Sweden; was admitted to United States Marine Hospital, port of San Francisco, Cal., February 20, and died April 1, 1900.

History.—Patient was treated at this hospital from November 11 to 27, 1899, for the disease which necessitated his return. He was unable to work, and had attacks of palpitation and dyspnœa with tendency to swelling of the ankles. Examination showed dullness over base of lungs, harsh respiration, roughened breathing, and moist rales in right base. Area of cardiac dullness increased about one-third; a loud systolic murmur at the apex of heart, but heard with greatest intensity over aortic orifice though fairly distinct over entire surface of chest. The second sound prolonged. The symptoms included insomnia, having to sit up in bed at night, cough, with frothy mucous expectoration, and pain in the left side of chest. A few days after admission rheumatism in left hip developed, but disappeared in less than a week under treatment. Then patient was up and about for a while. On March 15 his feet became considerably swollen, especially during the day, and he suffered much from dyspnœa, insomnia, and pain in the left side of chest, and epigastrium. His appearance was very cachectic; was pale and countenance expressed great distress; the carotids pulsating. A week later the radial pulse became feeble, and hands and feet were cold, with orthopnœa and pain in chest, with dyspnœa. This, with a dry and troublesome cough, caused poor rest at night.

March 31.—Patient grew rapidly worse in the last few days and emaciated noticeably. Often the medical attendant was suddenly summoned to relieve immediately dangerous symptoms.

April 1.—Patient restless and unable to lie in bed, expression of impending dissolution; face and hands livid; respiration 40 per minute, and pulse absolutely imperceptible at the wrist; articulation difficult and indistinct; diarrhea; diaphragmatic breathing. Bloody vomiting set in and patient died of asphyxia at 2 p. m.

Treatment consisted in the use of salicylates, which relieved the rheumatic attack; stimulating expectorants for cough, ammonium carbonate, etc.; enforced rest in bed; sulfonal for insomnia (which was in some measure effectual); and as heart stimulants, tinctures of digitalis and strophanthis. Nitroglycerin was later employed successfully in relieving pain in heart and distressing orthopnœa. Hot baths at bedtime were frequently administered, and tonics, including strychnia, were employed from the first. Cascara sagrada and magnesium sulphate were used when indicated, and patient had a course of potassium acetate for its diuretic effect. Infusion of digitalis was substituted for the tincture as the indications for stimulation became more imperative. The diet was principally milk. Morphine sulphate was used hypodermically toward the end to quiet great suffering.

Necropsy (*four hours after death*).—Body that of a well-developed and well-nourished white adult male. Lividity universal, nearly; rigor mortis absent. Lower extremities œdematous. Left pleural cavity filled with 1,500 c. c. of mahogany-colored fluid. Recent fibrinous deposit over entire left lung and costal pleura. No adhesions on right side; no effusion. Weight of lungs, left, 580 grams; right, 775 grams. The latter is engorged with blood and there are four fresh infarcts in the lower lobe. Sections of these areas sink in water. The whole left lung is in a compressed state, the lower lobe, upper part, being atelectatic; there is a large hemorrhagic infarct in the base, the apex of infarct being directed inward and upward. The heart is increased one and one-half times its normal size and weighs 700 grams; it is filled with fluid blood. There is extensive atheroma of the aorta involving its entire circumference. Aortic valve thickened, atheromatous, and incompetent; the mitral is also thickened. The walls are hypertrophied, especially the right ventricle. Auricles are not dilated. Weight of kidneys: Right, 155 grams; left, 185 grams. The latter shows contractions on the surface, the capsule being adherent over a large area; there is parenchymatous nephritis. Both organs show fatty change in areas. Weight of liver, 1,680 grams; surface is very coarsely granular, rough, and even nodular; organ firm on section, resistant; shows cirrhosis and fatty change. The gall bladder is distended with bile. Spleen small; weight, 125 grams; blood escapes on section. Pancreas normal; weight, 50 grams. Bladder filled with urine; normal. Brain weight, 1,570 grams. Cerebro-spinal fluid increased in amount. The left ventricular nucleus presents numerous white points distributed uniformly through the ganglion, and indicating sclerosis. The corresponding area on opposite side is normal. Intestines: The ileum is very much engorged with blood and the solitary follicles are prominent. The serous coat of colon over the signoid flexure is green. Sections of affected organs were preserved in Muller's fluid for microscopic examination.

F. J. T.
J. M. G.

Aortic and mitral.

A. M.; aged 43 years; a native of France; was admitted to St. Mary's Infirmary on May 16, 1900, and died June 14, at 1 o'clock p. m.

When admitted he complained of urgent dyspnœa, whether he moved or not. He did not sleep at all well, for when he went to sleep he would soon awake with a suffocating feeling as if some one was trying to strangle him. His feet and legs were much swollen, so much so that he had incised the skin with a razor before his admission to relax the skin. His color was bad, resembling one partly asphyxiated. Physical examination showed his heart to be much enlarged. The apex beat was to the left of the left mammillary line and 6 c. m. below the nipple. There was heard a double murmur over the apex, showing that there was an obstruction to the forward movement of the blood current, and at the same time from incompetency of the mitral valves a regurgitation of blood from the left ventricle when the systole was taking place. A similar double murmur was heard over the aortic valves. Heart tonics, such as digitalis infusion with potassa bitartrate as a diuretic, relieved him some. These were combined with strychnia sulphate. Tincture of passiflora incarnata in 20 minim doses gave him fairly good sleep. It seemed to quiet the mind and free him from awakening with the feeling of suffocation. Tincture of passiflora can often be used in place of opium as a narcotic with good effect. This patient's case was hopeless from the first. He died quite suddenly on June 14, 1900.

Necropsy (*two and one-half hours after death*).—Body well nourished, that of a man 1.7 meters tall, and would weigh 77.2 kilograms. Rigor mortis not present. Body still warm. Post-mortem lividity over face and back; no scars. Flower of France tattooed on left forearm. Feet, legs, and abdomen œdematous. Section showed much serum in subcutaneous tissue. In abdominal cavity there was about 1,500

c. c. of serous fluid and 250 c. c. in each pleural cavity. The liver was smaller than normal and showed one large and one small cicatrix in the right lobe. Section through the larger cicatrix showed that the destructive process had extended through the whole thickness of the organ. Throughout the whole liver on section the arteries, veins, and bile ducts were prominent. The liver on section was pale and the capsule of Glisson was much thickened. The surface of the liver was irregular, the hepatic lobules were prominent. The kidneys were atrophied, and there were very many cysts of various sizes in each kidney. They contained a clear fluid.

The heart was very large. There was about 100 c. c. of serous fluid in the pericardial sac. The left ventricle formed seven-eighths of the whole heart substance. The left ventricle was dilated and hypertrophied. The wall was 2.5 c. m. thick and the cavity contained 400 c. c. of coagulated blood. The heart had stopped in diastole. The diameter of the heart at the auriculo-ventricular junction was 13 c. m. The right ventricle was empty and the cavity small. It would hold about 75 c. c. of fluid. The aortic and tricuspid valves were incompetent. The aortic valves were thickened with atheromatous patches and deposits of lime salts. The intima of the whole thoracic aorta did not show a patch of healthy tissue. The mitral valves showed atheromatous degeneration and stiffening. The mitral orifice admitted three fingers, the aortic orifice two, without tearing the cusps. Lungs normal. Spleen normal in size, pale in color, and of firm consistency. There were two areas on the outer surface of the spleen which were elevated above the surface. The color on section was gray, and in dimension conical. It extended 1 c. m. into the organ. The larger extended through the entire thickness of the organ. Like the smaller, it was gray in color. It seemed like tissue undergoing caseation.

C. T. P.

Influenza with mitral insufficiency.

W. K.; aged 53; nativity, Alabama; admitted to the United States Marine Hospital, Mobile, Ala., April 17, suffering from influenza; died April 20, 1900.

History.—Patient had enjoyed good health until a short time before entering hospital; present illness began with slight chilly sensations, followed by moderate temperature with cough and expectorations; patient's condition improved steadily, temperature returned to normal, and cough had almost disappeared when he was suddenly seized with severe pain in precordial region accompanied by intense dyspnœa with free watery expectoration, patient dying within a few minutes after beginning of attack.

Necropsy (*sixteen hours after death*).—Body that of colored male of medium height and weight; rigor mortis still present, blood-stained frothy discharge escapes from mouth and nose. Body opened by median incision extending from upper border of sternum to symphysis pubis; layer of fat about 1 inch in thickness between skin and anterior abdominal muscles. Omentum covered with fat and adhesions present on both sides. Pericardium normal in appearance and contains about 50 c. c. of serous fluid. Heart muscle degenerated and walls of all its cavities thickened. Hypertrophy most marked on left side of heart; mitral valve incompetent and covered with numerous vegetations. Endocardium covering cavities slightly roughened. Heart weighs 580 grams. Left lung adherent to chest wall in front; weighs 580 grams. On section a watery fluid, frothy in character, exudes readily. Lung crepitates throughout and is very œdematous. Right lung presents adhesions to chest wall in front and to diaphragm below. Weight, 580 grams. Condition similar to that of left. Arch of diaphragm is between the sixth and seventh ribs. Liver weighs 1,590 grams; bleeds easily on section, has granular appearance, is firm in consistency, its under surface being stained with bile. Spleen weighs 270 grams; splenic substance very dark in color and very friable. Appendix normal and rather long. Left kidney weighs 177 grams; capsule slightly adherent. Organ is in state of chronic congestion. Right kidney weighs 160 grams; bleeds easily on section, capsule adheres slightly; also chemically congested.

B. Z. L.
W. P. McI.

Aortic and mitral.

J. V.; admitted to United States Marine Hospital, port of New York (Stapleton), December 10, 1899; died February 10, 1900.

Family history.—Negative.

Previous history.—Had enteric fever three years ago.

Present illness.—First noticed cough two months ago; attacks of palpitation; chief complaint now, cough.

Physical examination.—Inspection: Dyspnœa urgent; chest expands equally; barrel-shaped thorax; area of cardiac impulsion increased, extends to epigastric region; peripheral circulation below normal. Palpation: Vocal fremitus about equal on both sides; force of cardiac impulse increased; systole increased in force and frequency; area of impulse increased. Percussion: Superficial cardiac space increased in extent; extends from third intercostal space above to costal cartilages of ninth and tenth ribs below and from line drawn through left nipple to an inch to the right of right border of sternum. Lungs: Hyper-resonance. Auscultation: Diastolic murmur heard over aortic valves and traceable to apex; systolic murmur at apex, traceable to axilla. Examination urine: Slight amount of albumen; no tube casts. ℞: Infusion digitalis. There was some improvement for a time. At times præcordial pains. Dyspnœa became less, albumen disappeared from urine, and general condition improved.

December 24.—Began to have gastric disorder, and digitalis was discontinued and patient put on tincture strophanthus. Patient seemed to do well until January 12; at this time dyspnœa became more urgent, pulse intermittent, and patient appeared to become mentally unbalanced. Was placed on infusion digitalis in increased doses.

January 21.—Œdema of lower extremities was present, and it was evident on examination that compensation of left ventricle was failing. Saline cathartics were administered in fractional doses in conjunction with digitalis. After this the œdema diminished somewhat, but patient continued growing weaker and dyspnœa became more distressing. Palpitation and præcordial pains became worse, as did also the patient's mental condition.

February 3.—The pulse intermitted every third pulsation. This intermission was overcome to some extent by strychnine, but finally would not respond to any form of treatment. Patient grew rapidly weaker and died at 1.30 a. m., February 10.

Necropsy (*thirty-six hours after death*).—Male; white; age, 64. Post-mortem rigidity well marked. Suggilations well marked. Pupils moderately dilated. Subcutaneous fat small in amount. Ant. mediastinum negative. Pericardium contains 100 c. c. straw-colored fluid. Heart: Extends about 6 cm. to right border of sternum, greatly enlarged; weight, 615 grams; chicken-fat clot in both auricles, also dark clotted blood in left auricle. Valves, aortic-markedly incompetent by hydrostatic test, also marked calcareous and fibrous changes. Pulmonary: Competent by hydrostatic test; no calcareous or other changes; mitral show marked calcareous degeneration. Ventricles: Left, walls very much hypertrophied; right, walls little thicker than normal. Lungs: Right, markedly adherent; weigth, 915 grams, œdema in apcx; left lung, slightly adherent, weight 705 grams; some œdema and congestion in lower lobe. Pleuræ: Left contains 500 c. c. sero-sanguinolent fluid. Liver: Weight, 1,820 grams; congestion in right lobe; slight fatty changes. Stomach: Mucous membrane injected, especially at cardiac end; rugæ well marked. Kidneys: Left slightly congested, cortex thin, markings distinct; capsule nonadherent; weight, 200 grams; right, cortex very thin, markings distinct, capsule nonadherent. Spleen and other organs apparently normal.

C. W. V.
G. W. S.

Mitral.

J. D.; age, 36; native of Ireland; admitted to the United States Marine Hospital, Stapleton, Staten Island, N. Y., September 15, 1899; died November 26, 1899.

History.—Family history negative; previous history negative. Present illness began one month ago with pain in head, occipital region, and shortness of breath. Both increased in severity till patient could do no work, could not go up or down stairs, and he came to the hospital for relief.

Examination.—Left lung negative. Right lung showed evidence of old pleurisy, giving squeaks and friction sounds behind. Patient complained of cough; no other cause found. Heart: Heart much hypertrophied, apex beat in nipple line and 2 inches below, impulse felt over entire pericardium, as well as over epigastric region. Murmur, blowing in character, systolic in rhythm, heard at the apex, and transmitted to the left. Pulse rapid, weak, but regular.

Patient was kept in bed, given a milk diet, and tr. digitalis. Under this treatment he improved till the 29th of September, when his headache was gone and his dyspnœa much less, and he was allowed to sit up. For three weeks patient continued to do well; he retained his food, slept well, and, though the murmur did not change, he seemed much better. On October 25 his cough grew worse, prevented his sleeping, his dyspnœa returned, as did also his headache, and added to these was a persistent nausea that prevented his taking almost any food. Patient's heart would not respond to any of the ordinary drugs, his nausea, dyspnœa, and cough increased slowly but steadily, and he died November 26, 1899.

Necropsy (*eighteen hours after death*).—Rigor mortis well marked; body poorly nourished, no marks of violence; subcutaneous fat small in amount. Pericardium and pericardial fluid normal. Heart very much enlarged; weight, 640 grams; displaced to the left slightly and filled with clots, part of which was of the goose-fat variety. Auricles and pulmonary vessels also filled with firm clot. Right ventricle somewhat dilated, walls normal in thickness, light in color. Auriculo-ventricular opening dilated, tricuspid valve incompetent, flaps small and bound by adhesions to the walls of the ventricle; no calcareous deposits. Left ventricle also dilated, walls thinner than normal and paler in color. Auriculo-ventricular opening widely dilated; mitral valve incompetent; flaps small, with calcareous deposits along their edges. Chordæ tendinæ and musculi pectinati normal. Aortic opening dilated; valves incompetent. Walls of aorta thin; no atheroma. Right lung firmly bound to parietal pleura on its entire posterior and inner surface by old adhesions. These grow more dense toward the apex. Lower part of pleural cavity contained considerable amount of fluid, straw colored. Lung crepitates, floats, weighs 1,120 grams. No evidence of tubercle. Lung tissue congested and markedly œdematous. Lobes bound together by dense adhesions. Bronchial tubes thickened and inflamed. Left lung entirely free except at apex, where it is firmly bound to the parietal pleura. Also slight adhesions between lobes. Lung crepitates, floats, and weighs 1,050 grams. Lower lobe slightly congested; some œdema, no nodules. At extreme apex small area of degeneration. Liver weighs 2,020 grams, firm to touch, pale on section. Spleen adherent to diaphragm by old adhesions; weight, 355 grams, very dark, friable. Stomach, normal in position, color, size; weight, 230 grams. Kidneys small, firm; capsules nonadherent, position normal, no line of demarcation between cortex and medulla, almost fibrous when cut; weight, left 200, right 195 grams. Pancreas normal. Intestines normal except for some congestion. Appendix vermiformis normal except for some congestion. Bladder and contents normal.

W. C. H.
G. W. S.

Aortic and mitral regurgitation—Aneurism ascending aorta.

G. S.; aged, 47 years; nativity, Germany; was admitted to the United States Marine Hospital, port of San Francisco, Cal., December 2, 1898; was discharged, at his own request, improved, January 16, 1899; readmitted January 26, 1899, and died November 26, 1899.

History.—Previous history of gonorrhea and a venereal sore of doubtful nature. Present illness began about September, 1898; the principal symptoms were pain in the abdomen and back and shortness of breath. Examination on admission showed patient well developed and well nourished; pulsation in peripheral arteries forcible and of water-hammer type; apex beat palpable 2 cm. below and 1 cm. to left of left nipple; double murmer heard at apex and at aortic cartilage.

May 1.—Since admission patient has complained almost constantly of severe pain in abdomen. On above date the following note was made: "Examined by Roentgen ray the heart could be distinctly outlined and its pulsations plainly noted. At aortic arch another shadow, almost as large as the heart and pulsating rather feebly, could be made out. This shadow appears to be that of an aneurism." A few days later marked epigastric pulsation was noted.

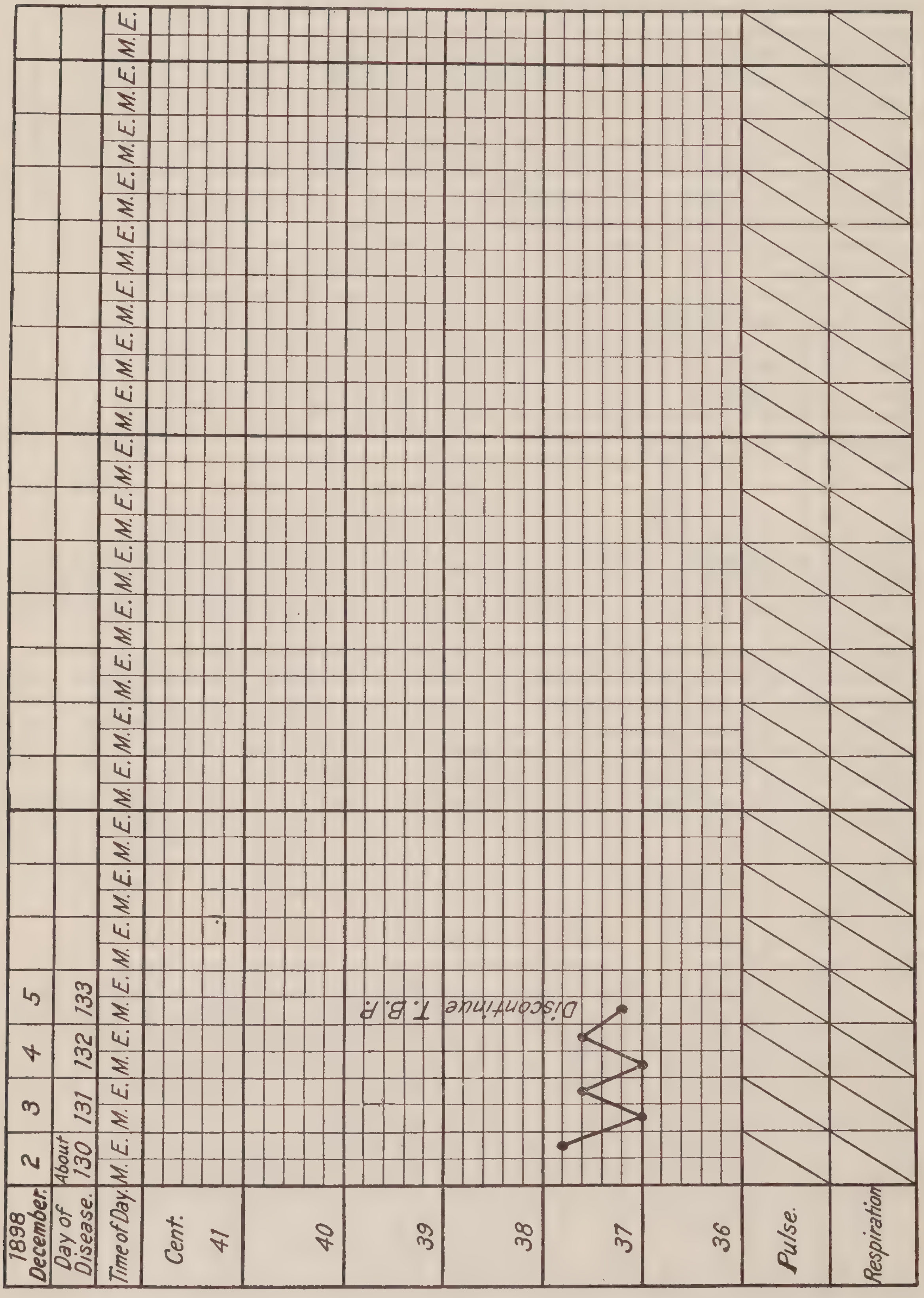
July 25.—Patient no longer able to swallow solid food and his voice much enfeebled. During August much troubled with diarrhea.

August 26.—The third Roentgen ray examination tended to confirm diagnosis of aneurism. Patient's condition grew gradually worse; he became much emaciated, severe pain being almost constant. A double murmer could be heard over whole chest and upper portion of abdomen, as well as along the course of the larger vessels, especially the carotid, subclavian, and femoral arteries. A pulsating tumor was palpated in epigastric region.

November 25.—Patient complained of sharp cramp-like abdominal pain. Examination showed abdomen distended and tender. Patient died on November 26, at 6.30 a. m.

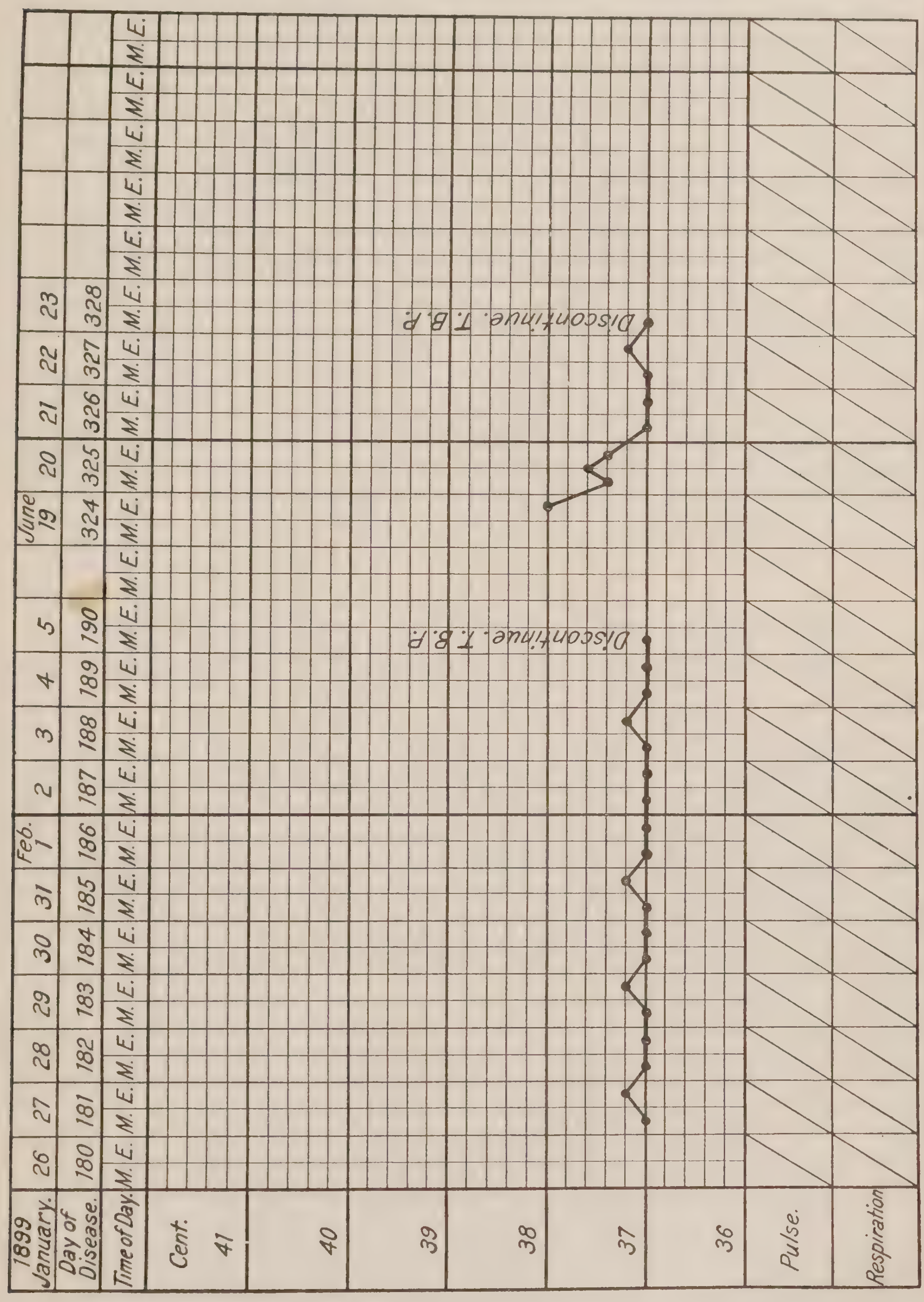
Treatment consisted in the administration of potassium iodide, otherwise largely stimulant and analgesic.

Necropsy (*four hours after death*).—Body that of an emaciated, poorly developed, elderly white male. Rigor mortis absent. Post-mortem lividity well marked. A tumor, probably lipomatous, in right inguinal region. On opening the abdomen the intestines are found markedly distended with gas; the small intestines much discolored, the superior coils are reddened, the inferior of a dark slate color. On surface of intestines and omentum scattered flakes of newly formed lymph and other evidences of an acute inflammation. Pupils moderately dilated and equal. The abdominal cavity contained 350 c. c. of turbid blood-stained fluid. Mesenteric and omental glands enlarged. The stomach markedly distended with gas. Lying behind the stomach, in the course of the abdominal aorta and crossed at its lower part by the pancreas, is a tumor of about the size of a lemon. The external surface of the pericardium is connected to adjoining structures by a few bands of lymph. The pericardial sac contains a normal amount of serous fluid. There are a few easily broken adhesions between the parietal and visceral layers of pericardium. The heart is much enlarged and lays transversely in the thorax, with the base much depressed. The right auricle contains a large "chicken-fat" clot. Both ventricles contain similar, but smaller, clots. The left auricle empty. The ascending aorta greatly dilated, the dilated portion being adherent here and there to the parietal pericardium. Both pleural cavities are practically free from adhesions. The left lung weighs 330 grams, small and compressed, presenting no abnormalities on section. The right lung weighs 400 grams, compressed, also presenting normal appear-



[U. S. Marine Hospital, port of San Francisco, Cal.; name, G. S.; age, 46; disease, valvular disease of heart, aortic and mitral regurgitation.]

ance on section. The spleen weighs 170 grams; its capsule thickened and slightly shrunken; otherwise normal. The left kidney weighs 160 grams; its capsule normally adherent; stellate veins well marked; slightly congested, but substance somewhat pale; relation between cortex and medulla about normal. Right kidney weighs 150 grams; resembles its fellow. Adrenals normal. Diaphragm normal. The liver weighs 1,470 grams, dark in color, markedly congested, but of normal consistency. The ductus communis choledochus patent. The genito-urinary organs normal. The heart weighs about 500 grams. The pulmonary and tricuspid valves are normal; the mitral valve is thickened; the segments of the aortic valve markedly thickened and the circumference of aortic opening measures 8.5 c. m. Behind the right posterior segment of the aortic valve was a pouch aneurismal in character, but not containing any clot, large enough to admit the ends of two fingers. The heart



[U.S. Marine Hospital, port of San Francisco, Cal.; name, G. S.; age, 46; disease, valvular disease of heart, aortic and mitral regurgitation; aneurism of ascending scale.

muscle is markedly hypertrophied, rather dark in color, but of fairly firm consistence. The intima of the aorta is markedly atheromatous and the vessel itself greatly dilated. Its circumference at the middle of its ascending portion was 15 cm., of the descending portion of the arch 9 cm., and at its point of division 4.25 cm. At the junction of the ascending and transverse portions is a small saccular aneurism, projecting upward, about the size of a walnut, connected with the lumen of the aorta by an orifice of about 0.5 cm. in diameter. Its walls are very thin and contain a scanty, adherent clot. Five other similar saccular diverticula, mostly of smaller size, are noted on the posterior wall of the descending aorta. The intima of all the arteries arising from the arch is markedly atheromatous. Toward the termination of the thoracic aorta is a saccular aneurism, with its orifice on the posterior wall somewhat to the left side, containing a thick adherent clot. Below this again are two much smaller saccular aneurisms. At the upper portion of the abdominal aorta is a tumor, previously referred to as of about the size of a lemon, involving in its mass the origin of the cœliac axis and superior mesenteric. On examination this is found to be an aneurism springing from the cœliac axis. It contains a soft, dark, post-mortem clot and its walls are lined with a lighter, firmer, adherent clot. The right common femoral artery is dilated and shows evidence of atheroma. Its circumference just above the origin of the profunda is 2.7 cm. The stomach is greatly dilated. In the duodenum, about 10 cm. below the pylorus, is a white, circular, flat nodule, about 1 cm. in diameter; reserved for microscopic examination. The intestines, especially the lower portion of the ileum, show evidence of chronic catarrh. In the lower portion of the ileum are a few small superficial ulcerations. The bodies of the vetebræ, from the seventh dorsal to the first lumbar, inclusive, showed marked evidence of erosion. Those of the last four dorsal vertabræ, corresponding to the site of the marked dilation of the thoracic aorta, are very greatly eroded; the others only slightly so. It is noticeable that the intervertebral disks are but slightly eroded. The brain weighs 1,420 grams and is slightly hyperemic, otherwise normal.

H. M. W.
D. M.
J. M. G.

Disease of mitral and aortic valves of heart, sarcoma of lung, and empyema.

J. N.; aged 28 years; nativity, New York; admitted to the United States Marine Hospital, St. Louis, Mo., May 10, 1899, and died August 22, 1899.

History.—Has been sick since last day of April (forty days since); at that time while cleaning an electric-light globe he suddenly felt faint, and upon reaching the ground he began to cough and spit up blood with each paroxysm during the entire day until about 250 c. c. of blood was lost this way. A physician finally stopped the hemoptysis. The next day symptoms still prevailed, but much mitigated. Another physician told him he was threatened with pneumonia and saturated patient with opium (according to patient) and applied mustard plasters to blistering point from clavicles to umbilicus. Unable to tell any further about condition for next few days outside of pain in chest and stiff and painful neck (nape), for he was irrational at times and dazed the rest of the time. He was confined to bed for one month, and for three weeks of that time the stupor above mentioned prevailed. The case then progressed as any convalescent, but patient has not gone to work. Four or five days ago noticed œdema of feet and ankles. Diarrhea also noticed at same time. During the time before admission here he was treated by a local doctor. Has had some pain of a lancinating nature in the right side of the chest increased by full inspiration. Face is now moderately œdematous; has been this way three or four times during the last four or five days, and is increased by position. Voids urine once or twice in twenty-four hours.

May 11, 1899.—Urinalysis, 11 a. m.: Quantity passed in twelve hours, 175 c. c. (diminished); sp. gr., 1.019; reaction, acid; color, yellow; sediment translucent (much clouding); albumen, 17 per cent; indican present. No pain; diarrhea checked since yesterday; dyspnœa for last three or four days; can not lie on left side because of pain which is constant; tongue coated with a thin, whitish fur, which resembles desquamation, moist, moderate size, broad tip, tremulous; pulse large, regular, incompressible, and somewhat quickened; examination shows a moderate anasarca; dyspnœa. Patient bright and intelligent; skin of a sallow, waxy appearance; heart sounds confusing; consolidation of lower two lobes of right lung; compensatory respiration in left lung; slept well last night.

May 12.—Upon exertion has two fainting spells in the last eighteen hours; at these times dyspnœa alarming and pulse fast, soft, irregular, and small. Sweating profusely. Passed 180 c. c. of urine in the last twenty-four hours.

May 13.—Urine increased to 700 c. c.; doing better. Face but little swelled. Complained of pain in the knee.

May 16.—Urine increased in amount and clearer, nearly normal in color. No pain only for brief periods at long intervals.

May 18.—Diminished amount of albumen in urine. Doing well; passed much urine.

May 19.—Lung clearer, but not well expanded. Pain in back of aching kind.

May 22.—Had some cramps in abdomen at 6 p. m. last night, due likely to cold milk; 6 m. of Magendies's solution and turpentine stupe relieved condition at once. Better this morning.

May 23.—Father died of inflammation of lung, after one month's sickness; no other history. Plaster applied over right lung. Sweat profusely last night. Tells us that he never could run any distance on account of dyspnœa.

May 28.—Had a cough on and off all winter and hemorrhage. Expectoration profuse. Creosote, 2 drops.

May 29.—Evidence of consolidation of whole of right lung shown in suppressed breathing; dullness amounting to wood note; compensatory respiration in left lung.

May 31.—Heartburn after supper until 9 p. m.; stopped since. Does not gain in strength.

June 12.—Right lung consolidated, wood note, right side of thorax bulges slightly, A few mucous rales heard on inspiration. Heart sounds roaring over mitral and aortic orifices. Impulse increased and heart hypertrophied; 20 m. tinc. of digitalis last night.

June 13.—Doing well, gained 8 pounds in seven days.

June 25.—Bulging in right thorax, 2 inches below clavicle, 2 inches externally to sternum; size of a small apple. Dullness over the whole right lung; also entire suppression of all breath sounds; a few bubbling rales heard at base of right lung, posteriorly. A few breath sounds at posterior border of the scapula. Complains of pain in side on raising arm. Left lung: slight dullness over lower portion, but respiratory murmurs heard over whole lung. Action of heart tumultuous. Continuous murmur heard. Stopped creosote and given malt.

June 26.—Carotid pulsation quite visible in the neck.

June 27.—Slight amount of albumen shown by picric acid test. Gelatinous sputum full of large, round and swollen nucleated cells; streaks of stroma present.

July 15.—Discharged, not improved, at his own request.

W. G. S.

Readmitted August 18, 1899. Patient returns, stating that bulging on right of the chest increased after leaving here last month, when he had it incised and fluid drawn off at a city hospital. He now has wound on right side of chest, in which is a rubber drainage tube, from which there is a free purulent discharge. Shortly after being operated upon he was told at the city hospital that a trip on the river might do him good, so he started off. He had not gone far, when he became very sick, vomited continuously; had diarrhea, and cramp in the abdomen; shortness of breath; vertigo and severe headache, with swelling of hands and feet. On admission he is in a distressing, critical condition. Dyspnœa marked. Stomach extremely irritable (on account of passive congestion), vomiting constantly. Taking but little nourishment. Respiration rapid, difficult, and painful. Bowels active. Has pain in epigastric region. Feet, hands, and face are swollen. Area of cardiac dullness greatly increased. Apex beat displaced, downward and to the left. Auscultation reveals mitral stenosis and regurgitation and aortic stenosis. Pulse is hard, rapid, and bounding. Cardiac compensation destroyed. Chest wound irrigated with 1 per cent tinct. of iodine solution. Strychnine sulph. ordered 0.002 three times a day; tinc. of digitalis 5 m. with the strychnine, and arsenic bromide 0.0016 three times a day.

August 19.—Epigastric pain and vomiting continues whenever food is ingested. Cerium oxalate 0.66 ordered and repeated three times a day, vel. q. 4 h.; nausea and vomiting persistent. Cocaine hydrochlorate 0.01 given by mouth, and ether sprayed to epigastrium gave some relief. Nutrient enemata given. Feeding by mouth discontinued. At bedtime a Magendies solution 6 m. given by mouth and retained. Slept but little. Magendies repeated.

August 20.—Somewhat easier, but very weak. Condition hopeless. Treatment of yesterday continued. Stomach allowed to rest. Nutrient enemata given. Magendies solution given hypodermatically at bedtime and repeated at midnight.

August 21.—Rested somewhat better last night. Œdema not diminished, notwithstanding strychnine and digitalis. Is more comfortable, but weaker.

August 22.—Heart gradually became weaker, and the patient died at 4 a.m.

Necropsy (*twelve hours after death*).—Rigor mortis well developed except in arms.

Abdominal wall, 2 cm. thick. Skull, one-half cm. in thickness. Body fairly well nourished. General œdema of extremities, with discoloration of pendant portions of body. Passive congestion is general. Pericardial sac contained 160 c. c. of fluid, reddish in color. Heart, 20.5 by 15.75 cm. by 10 cm.; weight, 1,020 grams. Heart markedly hypertrophied; thickness of wall of left ventricle, 2.75 cm.; of right ventricle, 1.50 cm. Ante-mortem and post-mortem clot combined in left ventricle. Calcarious deposits on aortic and mitral valves and within the aorta. Left lung: weight, 651 grams; dimensions, 23.5 by 18.5 by 6.5 cm.; crepitates on manipulation; is passively congested, otherwise in fair condition. Right lung: weight, 570 grams; dimensions, 24 by 17.5 by 7 cm.; adherent anteriorly and posteriorly; general solidification, except at apex; abscess cavity in right chest very small; had contracted considerably. Spleen: weight, 450 grams; dimensions, 17 by 11 by 5.5 cm.; surface hard and rough; within capsule substance was congested and friable. Right kidney: weight, 220 grams; dimensions, 12.5 by 8 by 3.5 cm.; width of cortex, 1 cm.; organ in good condition, except for recent passive congestion. Left kidney: weight, 245 grams; dimensions, 14 by 7 by 3.5 cm.; condition similar to right. Liver: 1,700 grams; dimensions, 27.5 by 19.75 by 7.5 cm.; lower border congested. Stomach walls hypertrophied, mucous membrane inflamed; organ was dilated, contained gas and undigested matter which had undergone fermentation. Appendix normal; intestines pale. No anomalies.

J. M. H.

Aortic mitral and tricuspid incompetency.

N. H.; aged 47; nativity, Missouri; admitted to United States Marine Hospital, Memphis, Tenn., March 14, 1900; died March 18.

History.—Occupation, roustabout. Has had rheumatism and syphilis. First noticed dyspnœa on exertion one year ago. During the last six weeks attacks of dyspnœa occurred nearly every night, in some of which he lost consciousness. These were usually immediately preceded by a sense of oppression in chest, and also by epistaxis. Examination on admission showed marked increase in area of precordial dullness; apex beat in seventh intercostal space and to the left of nipple line; impulse of heart very forcible. Violent pulsations of carotid arteries. Corrigan pulse. Loud diastolic murmur, heard with greatest intensity in second right intercostal space. Double murmur heard at apex. No swelling of feet. Liver dullness increased. Treatment consisted of rest in bed, light diet, and tincture digitalis, drops 5, thrice daily. Bowels opened with magnesium sulphate. Patient seemed to be improving, but during the night of 17th, while getting out of bed, he suddenly uttered a cry, fell back on the bed with blood flowing from mouth and nose, and expired.

Necropsy (fourteen hours after death).—Body that of a male negro, very well developed and nourished. Rigor mortis very pronounced; a bloody, frothy fluid oozing from nostrils; veins of heart present a varicose appearance; coronary arteries atheromatous; pericardium contained 50 c. c. of fluid; slight inflammation of visceral layer; heart greatly hypertrophied; weight, 585 grams; wall of left ventricle, 3 c. m. in thickness; all the cavities dilated; aortic valve incompetent; cusps thickened, rigid and contracted; large atheromatous patches in aorta immediately above the sinuses of valsalva; flaps of mitral valve normal, but orifice greatly dilated, admitting three fingers without difficulty; relative insufficiency also of the tricuspid valve; left pleura adherent over middle of lung; left lung weighed 722 grams; right pleura adherent over lower portion; right lung weighed 824 grams; both lungs congested; liver weighed 2,130 grams; marked congestion; several small calcareous deposits; gall bladder and duct normal; right kidney weighed 230 grams; left 245 grams; surface of each pale; capsule nonadherent; cut section very dark and blood oozes from surface of same; spleen hard and congested; brain weighed 1,380 grams; veins distended with blood; no excess of fluid in ventricles.

D. E. R.

Aortic insufficiency.

H. O.; age, 57 years; nativity, Germany; admitted to the United States Marine Hospital, Boston, Mass., June 14; died July 27, 1899.

History.—Occupation, fisherman. He used a pound of tobacco a month and drank very hard when he was ashore. His mother died of heart disease. He had always been healthy until five weeks previous to admission to the hospital, when he was taken in the night with shortness of breath and swelling of the ankles. The attacks of dyspnœa developed upon the least exertion and when lying down.

Physical examination.—On auscultation a marked systolic and diastolic murmur is heard at the second right intercostal space at the base of the heart and a systolic murmur at the apex. The area of hepatic and cardiac dullness is increased. The lungs are negative. Nothing abnormal was found in the urine. Both ankles are slightly swollen. The patient did not improve. The heart, which was enormously hypertrophied, began to fail rapidly. Four days before death the attacks of dyspnœa became more frequent and severe. A day later pain in the region of the heart set in, and the food was vomited.

Treatment.—Rest, digitalis, strychnia sulphate, strophanthus, convallaria majalis, milk diet.

Necropsy (twenty-one and one-half hours after death).—Rigor mortis present in the lower extremities only. Pupils normal. Cyanosis of the face. Œdema of the lower extremities present. Body fairly well nourished. The pericardial sac contained about 2,000 c. c. of purulent fluid. A fibrinous exudate was found on the inner surface of the sac. That portion of the pericardium covering the heart was found to have been much inflamed. In places, especially at the apex and base, the inflammatory process was very marked. Heart: Weight after opening, 680 grams; aortic valves thickened and incompetent; mitral valve incompetent also, due to the dilatation of the left ventricle; the pulmonary and tricuspid valves were found to be competent; the ventricular cavities were found to be dilated and the ventricular walls were thickened. The left lung weighed 520 grams. There was an old scar on the upper lobe posteriorly and old pleuritic adhesions at the base. The right lung weighed 870 grams. There were old adhesions on the lower and middle lobes anteriorly. The abdominal cavity contained 400 c. c. of dark fluid. The peritoneum appeared to be normal. Liver: Weight, 1,760 grams; typical nutmeg liver. Gall bladder and ducts normal. Pancreas: Weight, 70 grams; normal. Right kidney: Weight, 170 grams; small cyst present on the external border. Left kidney: Weight, 165 grams; normal. Spleen: Weight, 160 grams; congested. The suprarenal bodies weighed 5 grams each. The aorta presented numerous atheromatous patches and patches of calcareous infiltration. Weight of brain 1,570 grams; it and its membranes were found to be normal. The spinal cord and canal were not examined.

J. B. G.

ENTERIC FEVER.

P. G. (colored); aged 22 years; nativity, Arkansas; admitted to the United States Marine Hospital, St. Louis, Mo., July 6, 1899; died July 16, 1899.

History.—The patient was brought to the hospital in the ambulance. His illness began ten days ago with a chill and pains in his stomach and head. On each of the three following days he had a chill, and each day he felt himself growing weaker. His bowels were irregular, sometimes loose and sometimes constipated. For the last few days he has been too sick to get out of bed or help himself.

Physical examination.—Heart normal; a few râles heard over the lungs, but there is no dullness or increase of vocal fremitus. He has a slight cough; spleen enlarged, but no tenderness over abdomen or gurgling in iliac fossa; bowels have not moved for twenty-four hours; tongue small, dry, pointed, coated, trembles when protruded, and he forgets to draw his tongue back into his mouth. Intellect dull, subsultus tendinum present; temperature 38.9°, pulse 96. During the evening his temperature ran up to 40.5°, and the next day his temperature was kept below 40° with difficulty, it having been necessary to give him a cold bath every few hours.

July 8.—His mouth and lips were very dry, although a mouth wash was frequently used by the nurse. He expressed a desire for sour fruits and asked continually for ice water. He vomited the milk given him, and thin chicken broth was substituted. His temperature remained high all day, but at 7 p. m., while an ice bath was being given, it suddenly fell to normal.

July 9.—His blood was examined, but no malarial organisms were found. Widal's clump reaction was positive in 1:50 dilution. During the day his temperature did not go above 39.9°.

July 13.—He had a hemorrhage from his nose, following a vomiting paroxysm; malted milk and lime water was given to him instead of broth; stools greenish yellow; specific gravity of urine 1.010, reaction acid, 3 per cent of albumen present, also a number of granular casts, epithelium cells, and urates; only one-half the normal amount of urea was excreted during the previous twenty-four hours. At 9 a. m. his temperature was 37.2°, but it rose to 39.2° during the day.

July 14.—He complained of pain in his abdomen and he vomited nearly everything given him; abdomen flat and muscles tense. Temperature in the morning 39°, in the evening 37.2°.

July 15.—He continued to complain of pain in his abdomen, and he was very restless; no tympanitis present; face pale, but pulse full and strong; 96 in the morning and 100 in the evening; at 9 a. m. his temperature was 36.5°, and his respirations 18; at 6 p. m. his temperature was normal and his respirations 24.

July 16.—At 3 a. m. he had a slight hemorrhage from the bowels, which was followed by another one at 3.45 a. m. At 7 a. m. he had a severe intestinal hemorrhage, losing about 500 c. c. of blood; extremities cold; pupils contracted; pulse feeble; imperceptible at wrist. Hot bottles were applied, stimulants were given hypodermically, and hot saline solution was used by hypodermoclysis during the whole day, but he became unconscious at 11 a. m. and remained so until the time of his death, at 8.30 p. m.

Necropsy (*eighteen hours after death*).—Height, 186 cm.; body muscular, fairly well nourished; rigor mortis present; pupils contracted; thickness of skull, frontal portion, 4 mm., occipital, 6 mm. Brain: Weight, 1,350 grams; 17½ by 13 by 9¾ cm., tissue pale, but otherwise normal; cerebellum from before backwards, 4 cm., from side to side, 8¾ cm. Thickness of abdominal walls, 3¾ cm., muscular tissue bright, red, and moist; peritoneum opaque, color gray; diaphragm extends to the fifth rib on the right side and to the fifth intercostal space on the left side; mesentery poor in fat, yellowish-brown color, not adherent to small intestines; no fluid in abdominal cavity; appendix nonadherent and pointed to the center of the pelvis. Liver 1½ finger breadths below costal border. Intestines greenish-yellow color. Costal cartilages not ossified. Lungs 4 cm. apart at first intercostal space; 30 c. c. of straw-colored fluid in pericardial sac, small white spot on anterior surface of left ventricle near apex; left ventricle empty; left auricle contains dark blood and dark and white clots; two fingers can be passed through mitral valve; dark fluid blood in right ventricle; right auricle contains dark clots; four fingers passed through right auriculo-ventricular orifice. Weight of heart, 282 grams; measurements, base to apex, 11 cm., diameter at base, 10½ cm., thickness of wall of right ventricle, 5 mm., of left, 20 mm.; valves of heart normal except mitral, whose leaves are a little roughened, but not thickened. Right lung bound down to diaphragm and posterior wall of chest by strong adhesions; weight, 390 grams, 21 by 15 by 5 cm.; crepitant, color externally greenish gray with pinkish spots, internally reddish brown; serum and air exudes on pressure. Left lung: Weight, 460 grams, 22 by 14 by 7 cm., color externally light gray mottled with pink; the tissue found to be in the same condition as in the other lung. Spleen: Weight, 502 grams; 18 by 12 by 6 cm.; color dark slate externally, with dark circular brown spots, color internally dark brown, tissue fairly firm, pulp bulging rich in blood. Left kidney: Weight, 280 grams, 14 by 9 by 4 cm., capsule adherent in places, malphigian bodies can be seen on section with naked eye, color of cortical substance yellowish brown; thickness from base of pyramids to periphery of organ 1 cm., between pyramids 1 cm., line of contrast between pyramidal and cortical portion lost. Right kidney adherent to liver; weight, 245 grams; 14 by 8 by 4 cm.; capsule nonadherent; tissue in the same condition as in the other kidney. Bladder contains 30 c. c. of urine. Greatest diameter of stomach 10 cm.; color of mucous membrane grayish brown, surface covered with yellowish mucus. Small intestines filled with yellowish fluid. A number of small oval ulcers with deep red borders were found in the lower part of the ileum. These ulcers were very numerous in the last foot of the intestine. The large intestine filled with a dark tarry fluid. Liver: Weight, 1,870 grams, 27 by 24 by 4 cm., color dark brown, with areas of a lighter brown color. Tissue soft and cuts with very little resistance.

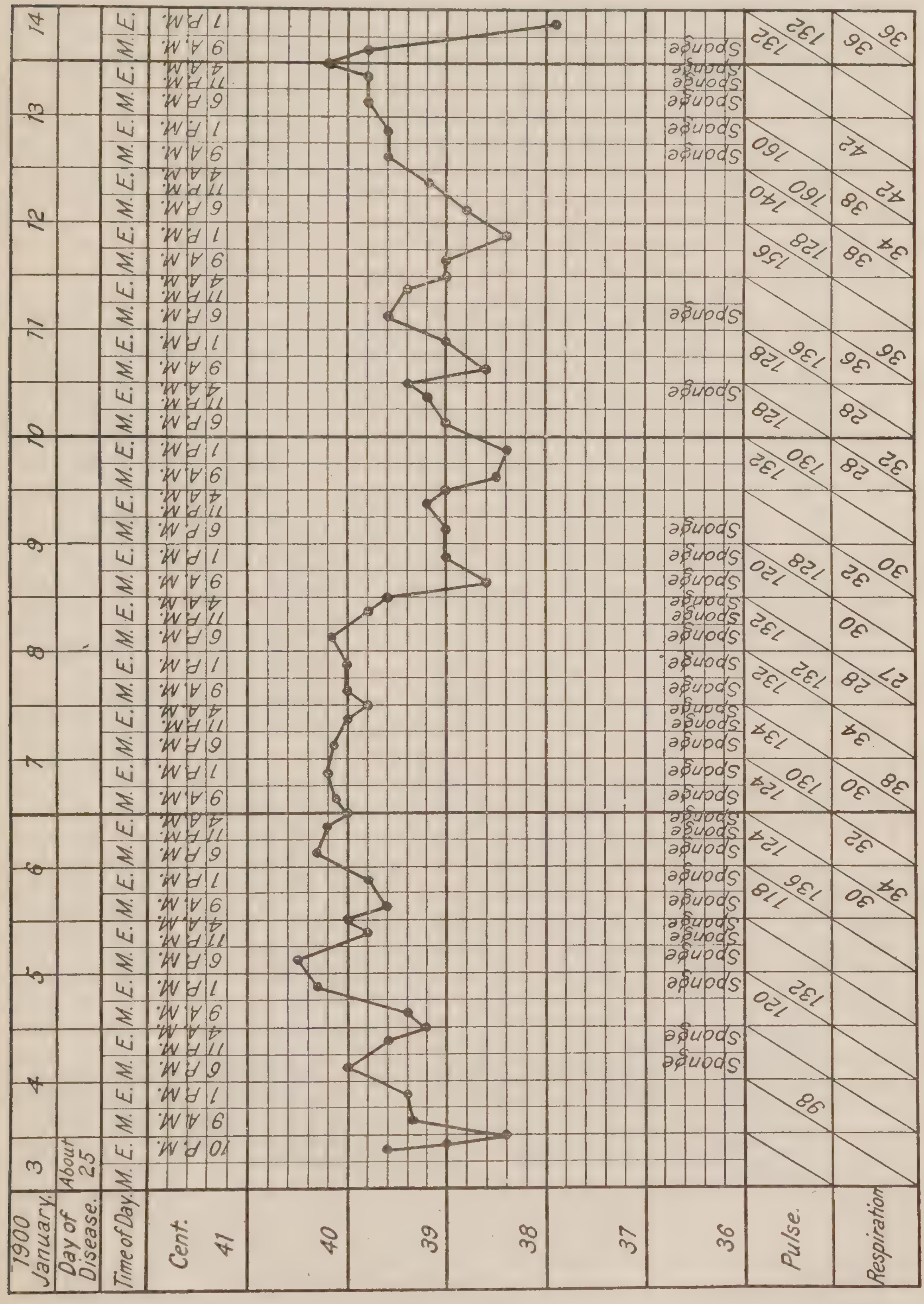
W. G. S.

Broncho-pneumonia.

J. M.; aged 48 years; nativity, England; was admitted to the United States Marine Hospital, port of San Francisco, Cal., January 3, and died January 16, 1900.

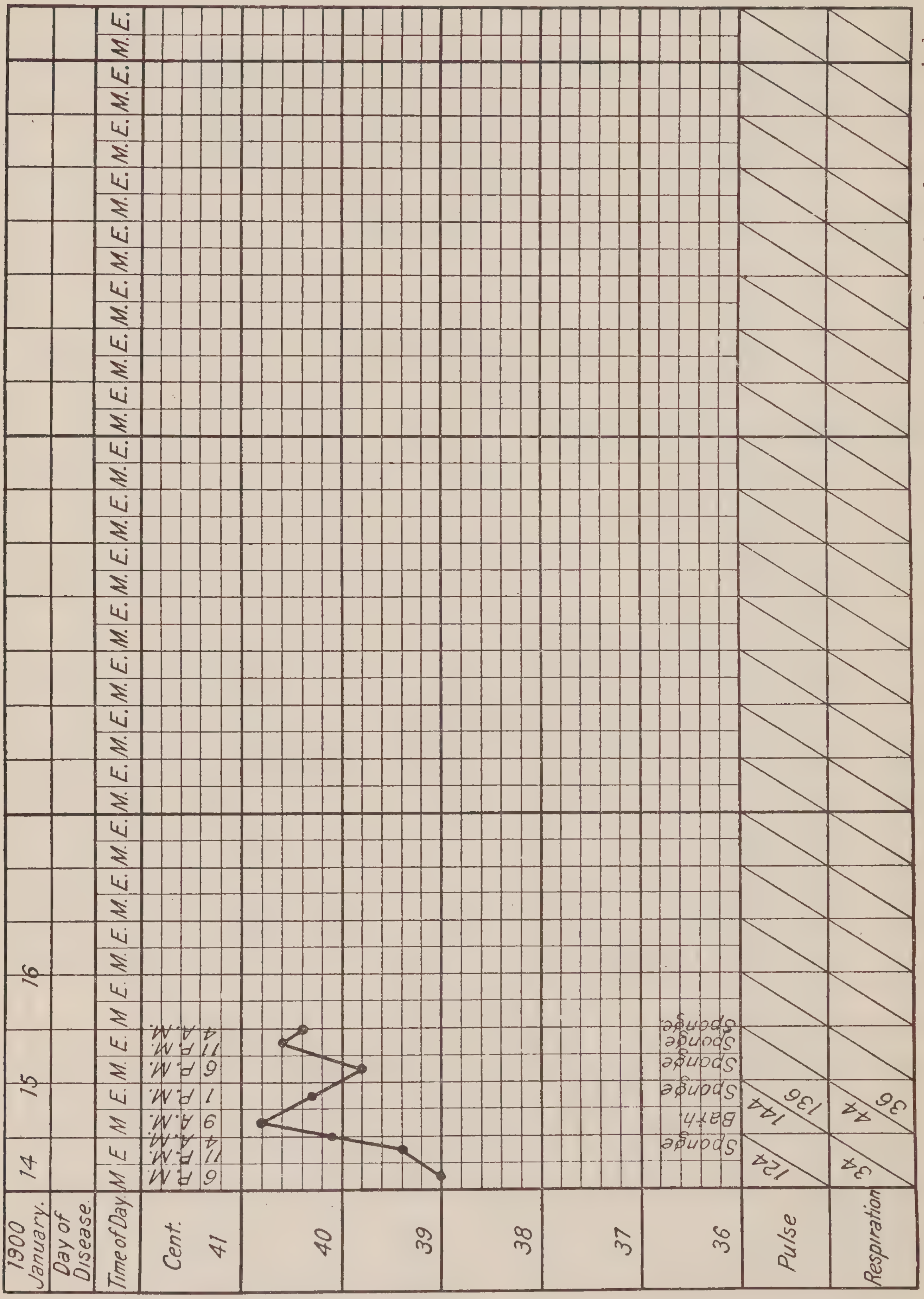
History.—Family history negative. On entering the hospital the patient seemed stuporous, but gave a history of having been sick four weeks, the initial symptoms being chills and feverishness, accompanied by a cough with a slight expectoration. He denied having any trouble with his bowels at that time. On admission he had a temperature of 39.6° C., with a thin, rapid, dicrotic pulse and rapid, shallow respiration. He coughed a good deal, expectorating white frothy sputum. His tongue was covered with a thick brown coat. Physical examination shows various râles all over the chest and scattered areas of dullness, the most marked being at the base of each lung. The heart sounds, though rapid, were clear. On his second day in hospital he became comatose and passed his feces and urine involuntarily and very frequently; symptoms which persisted, with occasional excesses of delirium, until his death. His temperature remained continuously high till the sixth day of his stay in hospital, when it showed a tendency to slight improvement, the other symptoms remaining constant. On the ninth day the temperature again rose and continued irregularly high until the end. The patient grew gradually but steadily weaker until death occurred at 7.45 a. m. January 16, 1900. Treatment consisted in the application of cotton jacket and ice bags to the thorax, the use of small doses of carbolic acid and tincture of iodine as intestinal antiseptics, the liberal exhibition of whisky and strichnine, and vigorous hydrotherapy, with milk and beef juice ad libitum.

Necropsy (*five hours after death*).—The body is that of a well-developed, well-nourished, white male. Post-mortem rigidity slight. Post-mortem lividity marked. The abdomen is somewhat distended. On opening the abdomen the omental fat is found excessive and the intestines distended with gas. A few of the omental glands are slightly enlarged and dark in color. There are no adhesions, and there is no fluid in the abdominal cavity. The fat throughout is enormously developed. The diaphragm is on a level on the left side with the fifth rib; on the right side with the



[United States Marine Hospital, port of San Francisco, Cal. Name, J. M.; age, 48; disease, enteric fever, broncho-pneumonia.]

fourth. The left lung weighs 590 grams. The lower lobe is for the most part of a dark red color and brawny to the touch; only slightly crepitant. On section it is bloody. The upper lobe shows marked evidence of pigmentary infiltration and contains scattered areas of consolidation around the bronchial tubes. The tubes themselves showed marked evidence of inflammation and contain a grayish exudate. The bronchial glands are uniformly enlarged and pigmented. There are some new adhesions between the base of the lung and the diaphragm. The right lung weighs 595 grams, and is in a similar condition to the left. The anterior mediastinum is full of fat. The parietal layer of the pericardium is slightly thickened, but is smooth and otherwise normal. The heart is markedly fatty. The right auricle is filled with blood. The right ventricle is about half full of blood. The left auricle and ventricle are empty. The ascending aorta shows moderate atheroma.



[United States Marine Hospital, port of San Francisco, Cal. Name, J. M.; age, 48; disease, enteric fever, broncho-pneumonia.]

The heart weighs 315 grams. The aortic semilunar valves are slightly thickened. The mitral valve shows, on its large segment, a patch of atheroma about 5 cm. long at its base. The small segment is normal. The tricuspid valve is slightly thickened in its anterior leaflet; otherwise normal. The pulmonary semilunar valves are normal. The heart muscle is paler than normal and slightly friable. The spleen weighs 175 grams and is very friable. The left kidney weighs 150 grams and is rather pale. Its capsule strips easily, leaving a smooth surface. On section it is markedly pale, especially in the cortex, which is thin. The fat about the pelvis is excessive. The test for amyloid degeneration by Lugol's solution is positive. The right kidney weighs 190 grams and answers the same general description as the left. The intestines show, in the jejunum and ileum, marked injection. A number of small ulcers are found in the last twelve inches of the ileum, and a few also in the cæcum and ascending colon. One small ulcer is found in process of formation in the appendix. The liver weighs 1,980 grams, is somewhat enlarged, and pale, showing marked evidence of fatty change. Its lower surface is bile stained. The brain weighs 1,240 grams, and is normal in appearance.

W. M. W.
H. A. S.
J. M. G.

W. H. (negro); aged 49; nativity, North Carolina; admitted to Mercy Hospital, port of Pittsburg, Pa., November 18, 1899; died November 28, 1899.

Patient had a chill about ten days previous to admission, and had "felt feverish" since that time. Profuse diarrhea the past five days. Severe headache and pain in back on entrance. Temperature, 40.5° C., with great prostration. Examination showed tenderness over the abdomen. Tympanites slight. Spleen somewhat enlarged, but not palpable. Gurgling in right iliac fossa. Widal's reaction was positive. The heart's action was very weak and irregular. A marked systolic murmur was heard at the apex—very distinct. Examination of the urine showed a trace of albumen, with hyaline and granular casts. Patient was semidelirious all the time. Temperature remained very high, requiring four and five spongings daily. Diarrhea very severe. Notwithstanding powerful stimulation, the patient's pulse became weaker and weaker. On November 26, 1899, the heart's action being so very weak, with delirium and temperature of 105° C., a quart of a warm saline solution was transfused into the breast. His condition was considerably improved thereby. Pulse was fuller, delirium less, and temperature lower. He was somewhat better the next day, but toward evening the heart's action was again very weak. A pint of the saline solution was transfused, with but little result. Patient died the next morning at 3 o'clock.

Necropsy (*twelve hours after death*).—Body greatly emaciated. Rigor mortis marked. Pupils evenly dilated. Arteries sclerotic. The skullcap is readily removed. No adhesions. Congestion of the cerebral vessels is slight. The ventricles are empty, and are, to all appearances, normal. The brain weighs 1,280 grams.

Thorax: In opening the pericardium about 15 c. c. of serum is found. The heart is seen in the state of systolic contraction. There is very little blood in the auricles and ventricles. The right auricle contains a clot like chicken fat, weighing 4 grams. The tricuspid valve is apparently normal. One leaflet of the mitral valve is partly bound down to the ventricular wall, preventing proper coaptation. By the hydrostatic test the valve is incompetent. The leaflets are thickened and are somewhat atheromatous, having gritty nodules at their edges. The auricular faces of the semilunar valves of the aorta are covered with a soft cauliflower-like vegetation, which is so extensive as to almost occlude the caliber of the opening like a ball valve. The weight of the heart is 378 grams. The lungs are in a state of hypostatic congestion about their bases and posteriorly. They are of a dark slate color and contain diffuse deposits of carboniferous material. Right lung weighs 516 grams and the left 500 grams. Abdomen: Tympanites is slight. There is no inflammation of the parietal or visceral layers of the peritoneum. In the lower part of the ileum several dark patches are seen through the coats of the intestines. The mesenteric glands are enlarged. No perforation of the bowel can be found.

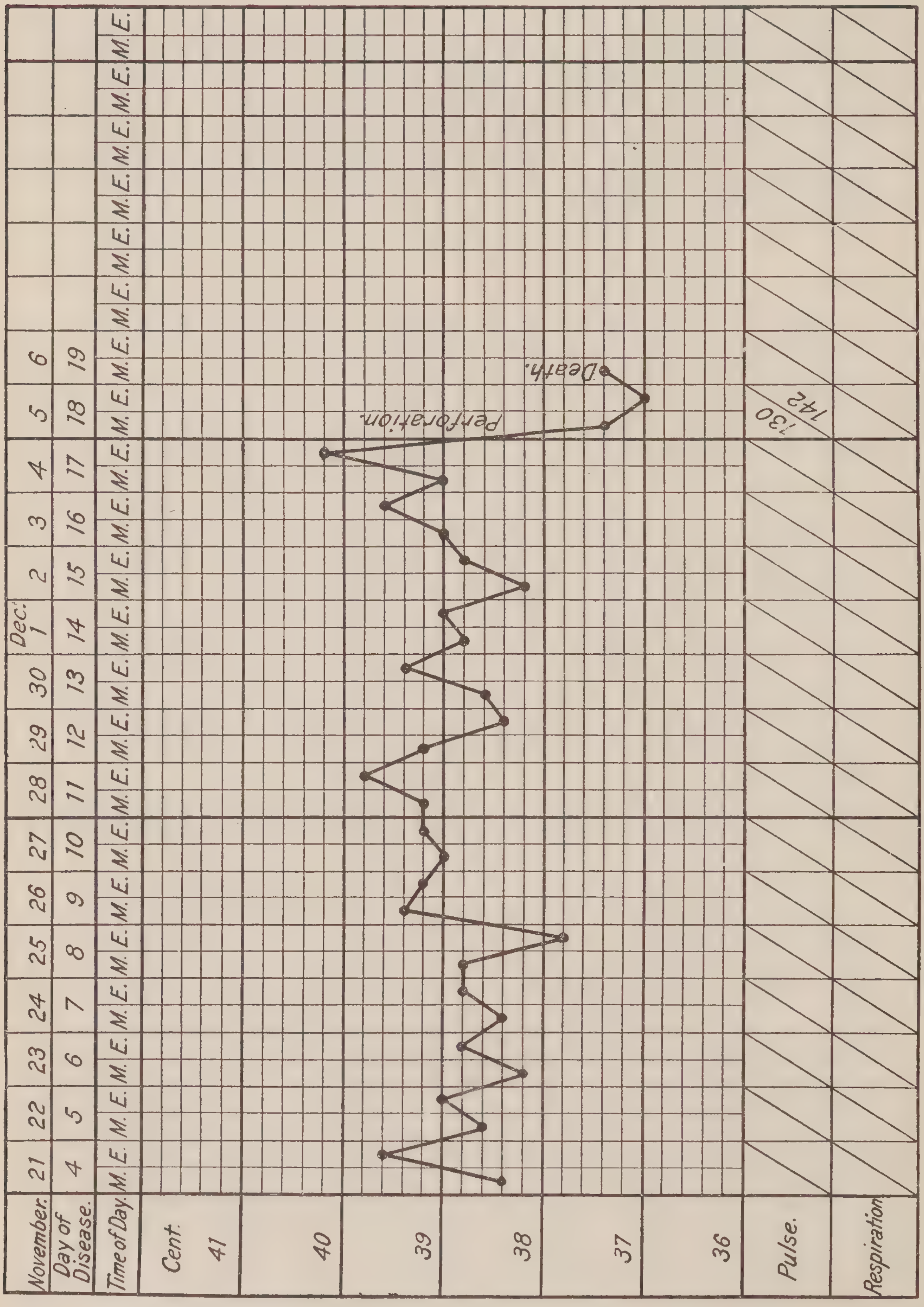
The liver is considerably congested, as is the spleen. Their weights are 1,920 grams and 230 grams, respectively. The kidneys present no pathological appearances. The right weighs 130 grams and the left 124 grams. The bladder contains about 100 c. c. of urine.

R. C. C.

Perforation of the intestines.

F. W. (white); aged 31 years; single; born in United States; admitted to the United States Marine Hospital, Cairo, Ill., November 21, 1899.

Illness began with diarrhea and colic. Had been sick four or five days previous to admission. Is an alcoholic habitue. Had from eight to twelve movements per day. Passed some mucus, but no blood. Loss of appetite. No nausea nor vomiting. Fever at night, but not very bad. General malaise. No history of any hemorrhages. Tongue furred; has been using tobacco. Pulse dicrotic. Says he has had some chills (?). Heart and lungs normal. Abdomen slightly distended.



[Name, F. W.; age, 31 years; disease, enteric fever; intestinal perforation.]

℞: Hydrarg. chlor. mite, 0.2 gm., podophyllin, 0.02 gm., soda bicarb. 2 gm. M. Sig: At once.

November 22.—Bowels moved very often during the night. ℞: Lead and opium pills. Sig: One every hour until six are taken. ℞: Strychniæ sulphas 0.001 gm., q. 6 h. Pulse weaker and more rapid this a. m. Examination of the blood negative. ℞: Guaiacolis carb. 0.33 gm., q. 4 h.

November 23.—Diarrhea still continues. ℞: Bismuth subnit. 3 gm. t. i. d. Stools "pea soup" in character.

November 26.—Spots which resemble the eruption of typhoid can be found this a. m.

November 28.—℞: Quinine and Dover's powder .33 gm. Sig: Four times a day in capsule.

(Signed) H. C. R.

December 5.—Command of the station transferred. Patient's temperature dropped from 40.2° last night to 37.4° this morning. Is vomiting. Abdomen tender, but only slightly distended. Diarrhea present; no blood in stools. Skin is dry and scaly. Iliac gurgling present. Tongue dry, coated brown in center, clean along edges. Lips dry and cracked. Sordes on lips and teeth. Pulse rapid, weak, compressible. Patient in condition of shock. Perforation of the intestine (typhoid) diagnosed. Patient's condition precludes operation. Given strychnine 0.002 gm. and whisky hypodermically q. 3 h. Turpentine stupes applied to abdomen.

December 6.—Died at 7.45 a. m.

Necropsy (*seven hours after death*).—Rigor mortis well marked. Body emaciated. Lips dry and cracked. Sordes on lips and teeth. Pendant portions of body much discolored. Abdomen but slightly distended, dull on percussion, no tympanites. Slight pressure on the epigastrium causes escape of greenish fluid from the nostrils. Blood of corpse is thin, watery, and coagulates very slowly. Free fluid in abdominal cavity greenish yellow, fecal odor. First stage of peritoneal inflammation. Some few adhesions between omentum and intestines. Deeper down the adhesions between the coils of intestines were firmer; more lymph thrown out. Lower parts of ileum intensely imflamed, some areas worse than others. Some places where sloughs had become detached, there were remaining simply the peritoneal coat separating the lumen of the intestine and abdominal cavity. At a point in the ileum, about 13 cm. from the ilio-cæcal valve, was found a rather large perforation, gaping, discharging thin "pea soup" fecal material. The appendix was enlarged and swollen. General enlargement and swelling of mesenteric glands. The colon was but little involved. Spleen weighed 260 grams, dimensions 15 by 8 by 2 cm., congested and friable; no abscesses. Right kidney weighed 165 grams; dimensions 11 by 7 by 3 cm.; thickness of cortex, 1 cm.; passively congested. Left kidney weighed 230 grams; dimensions 11 by 8 by 3 cm. Liver weighed 2,000 grams; dimensions 28 by 20 by 7 cm.; enlarged, congested, soft; probably seat of parenchymatous degeneration. Heart weighed 270 grams; right ventricle 1 cm. thick; left ventricle 2 cm. thick; heart small; stopped in diastole; some free fluid in pericardial sac. Lungs free, no adhesions nor consolidation. Bladder empty. Genital organs well developed. No urethral stricture. Stomach empty. No biliary calculi. Brain not examined. Body taken in charge by relatives.

J. M. H.

ENTERIC FEVER.

Perforation.

R. B.; age, 31; nativity, England; admitted to the United States Marine Hospital, port of New York, October 17, 1899; died October 27, 1899.

Family history.—Parents dead, cause not ascertained.

Previous history.—Had usual diseases of childhood; had rheumatism five years ago and fever sixteen years ago. Smokes, chews, and drinks.

Present history.—Received from steamship *St. Paul* with history of having been ill eleven days. Illness started with chilly feelings, headache, backache, general lassitude, and weakness. Fever developed, and when admitted had been taking quinine and was cinchonized. Has dry hacking cough, had vomited a great deal, has had diarrhea for past four days. Stools liquid, brownish in color, and offensive. Appetite poor. Has been taking milk, beef tea, and cracked ice.

Physical examination.—Throat, tongue, and mouth very dry, has bad taste in mouth and odor of breath is offensive. Tongue tremulous Respiration exaggerated. Epigastric pulsations. Palpation: Gurgling in right iliac region. Somewhat tender over spleen and liver. Pulse dicrotic. Percussion: Heart and lungs negative. Spleenic and liver dullness enlarged. Spleen and liver palpable under ribs.

Treatment.—Peptonized milk, beef, mutton, chicken, and clam broths. Sponge bath (cold) if temperature goes above 39. ℞: Salol .3 three times a day. Disinfect stools. Temperature on admission 40°, pulse 120, respirations 32.

October 18.—Had large watery yellowish stools during night. Feeling pretty good. ℞: Acid hydrochlorid dil. gtts. 15, three times a day. Temperature around 40 all day; baths given about every four hours.

October 19.—Nauseated at 4 p. m. yesterday. Tongue fairly clean. Had several small yellowish fluid stools. Passed about 1,200 c. c. urine in past twenty-four hours. Slight trace of albumen in urine. Temperature about 40° without any remission; baths continued. Was slightly delirious during night. Rose-colored spots on abdomen, and back marked.

October 20.—General condition much the same. Tongue dry but clean. No vomiting or nausea. Takes considerable food in form of peptonized milk, beef peptonoids, chicken, clam, and mutton broths. Abdomen distended. Bowels moved; stools formed. Pulse rapid and weak. Quite delirious. Temperature went to 40.4°, and despite cold alcoholic sponge bath remained up. ℞: Strychnine sulphate, 0.002 every three hours. ℞: Spts. frumenti, 20 c. c. every three hours. Ordered Brand baths every four hours.

October 21.—Still delirious; restless; mutters to himself; at times rational. Pulse fairly good. Temperature ranged between 40° and 39°. Tongue coated brownish. Does not sleep well. ℞: Morph. sulphate, 0.014 at night hypodermically. Takes considerable nourishment.

October 22.—Had five small "pea soup" stools during night. Temperature 5 a. m., 40°; given sponge bath, dropped to 38.8°; rose again at 6 p. m. to 39.8°; given sponge bath and temperature dropped to 38.8°. Pulse ranges from 100 to 112, and is soft. Takes nourishment well. Has not lost much flesh. Tongue clean and fairly moist. Slept well last night; not so delirious this a. m. Still has hacking cough.

October 24.—Appears better this morning; diarrhea less. Not restless and delirium less marked. Temperature remittent, ranging from 38.8° to 40°, responding to cold sponge baths.

October 25.—General condition fair. No marked distention of abdomen. Had several small liquid stools. Temperature remittent between 39° and 40°. Has some difficulty in urination, and complains of tenderness over spleen and liver.

October 26.—Became worse during the night. Delirium more marked. Bowels did not move; vomited this morning. Abdomen somewhat distended. No great tenderness over abdomen; slight tenderness over bladder; has difficulty in urination. Last night complained of pain in abdomen. Temperature ranged between 39° and 40° during day. Pulse rapid, feeble, 100° to 120°. Bowels did not move during the day. Given simple enema, which brought away considerable fæcal matter. P. m.: Abdomen much distended, tender over bladder, but not over rest of abdomen. Delirium marked, and slipping down in bed marked. Facial expression drawn and pinched. Given morphine sulphate, 0.014, hypodermically.

October 27.—General condition rapidly grew worse. Pulse became rapid, feeble, and indistinct; respiration became rapid, feeble, and shallow. Abdomen markedly distended and gives evidence of fluid; not very tender. Was delirious, muttering to himself. Became unconscious about 8 a. m., and died at 8.45 a. m., October 27, 1899.

Necropsy.—Body that of a male, apparently about 35 years of age. Fairly well nourished; neck, face, and ears deep purplish. Lividity of posterior parts of body marked, and it also extends up on sides. Rigor mortis well marked, and there is a yellowish-brown discharge from nose. Pupils moderately dilated. Brain weighs 1,175 grams; vessels and sinuses congested, and the ventricles contain a small amount of fluid, apparently normal. Cerebellum normal. Incision from supra clavicular notch to the symphysis pubis shows a clot under linea alba extending nearly to umbilicus above and on each side almost to internal inguinal rings. Subcutaneous fat is fair in amount, and muscles appear in good condition. There is a large quantity of turbid fluid of distinct fæcal odor in adominal cavity. Omentum normal, its vessels showing no particular congestion. Intestines are congested, and their external appearance bright red. Anterior mediastinum normal; remains of thymus glands normal. Lungs meet at center above. Pericardium covered by a considerable amount of fat and contains some fluid. Right heart is filled with dark fluid blood. Left ventrical contracted and also contains dark fluid blood. Heart weighs 300 grams. Normal in position. Veins of neck and inferior vena cava contain dark color fluid blood and there is a chicken-fat clot in pulmonary artery. Right heart is covered with a good quantity of fat, and muscle is in good condition. Aorta shows beginning calcareous degeneration and a slight ulceration 1 cm. from the orifice of aorta. Aortic valves are found competent by the hydrostatic test. Mitral valves also found competent by the same test. There is a small hemorrhage into the substance of right ventricle along its external border and about 1 cm. below the auricloventricular septum. There is a small chicken-fat clot in the left ventricle. Aortic and mitral valves about normal. Muscle of left ventricle is in good condition. Find a small chicken-fat clot in the right ventricle. Tricuspid valve cusps thickened, soft, and dull gray in appearance. Endocardium is pale, smooth, and glistening in both ventricles; cut section of muscle of left ventricle shows friable change; muscle is dull in appearance. Pericardium is smooth, glistening, and in normal positition; it contains about 50 c. c. of pale straw-colored fluid. Left pleura is smooth and glistening; shows no adhesion. Right pleura is in same condition. Left lung, 425 grams, has grayish appearance. Its external surface is pigmented a good deal. It floats, crepitates, and a cut section shows marked congestion. There is considerable frothy serous exudate; upper lobe is anæmic. Right lung 540 grams; findings same as left lung. Great vessels and nerves of thorax are normal. Diaphragm extends to between the fourth and fifth ribs and is normal. Spleen: 750 grams, enormously enlarged and extends downward into left lumbar region as well as into epigastric region; it is covered by recently formed lymph; its length is about 12 inches, breadth about 5 inches, and thickness 3 inches; its consistency is about normal, but Malpighian bodies are enlarged and splenic pulp increased in amount and dotted with yellowish gray areas. Left kidney: 160 grams, covered by fat; capsule nonadherent; external surface smooth, glistening; kidney is in normal position and of normal size; cut section shows markings indistinct; cortical and medullary portions show areas of yellowish color and granular as well as fatty changes. Right kidney: 165 grams; is displaced downward; about normal in size and has considerable fat about it; its capsule is glistening and nonadherent; cross section shows markings more distinct than in left kidney, but still both portions show granular and fatty changes. Bladder is contracted; walls thickened to extent of half inch; covered by inflammatory lymph, and its mucous membrane is thickened and shows ulcerations; it contains turbid urine and some pus. Prostate gland and seminal vesicles are normal. Left testicle shows beginning hydrocele; otherwise both testicles are normal. Urethra thickened, congested. Penis, negative. Peritoneum is roughened, congested, coated with lymph, especially below umbilicus. recent adhesions bind it to descending colon, ascending colon, and ileum. Coils of small intestines are much congested and covered by a layer of lymph. Stomach: Almost empty; external surface is congested; internal surface, dependent portion, shows numerous petechial spots. Duodenum is congested and covered by lymph, but otherwise normal; find perforation about 1½ inches from ileocæcal valve; the first ulcer was found about 18 inches from this valve, and number of ulcers increases as neared ileocæcal valve, which structure was entirely surrounded by ulcers, one of which had perforated; there is an extensive peritonitis with coagulated lymph around cæcum. Gall ducts, patent. Vessels of abdomen are full and normal. Liver: 2,180 grams; enlarged both up and down; undersurface is covered with recently formed lymph; substance is soft and friable; right lobe is the most enlarged, and cut section shows marked fatty change. Pancreas: 120 grams; large and soft. Rectum, normal, and contains feces. Mesentery: Congested; thickened from inflammation.

J. M. K.
G. W. S.

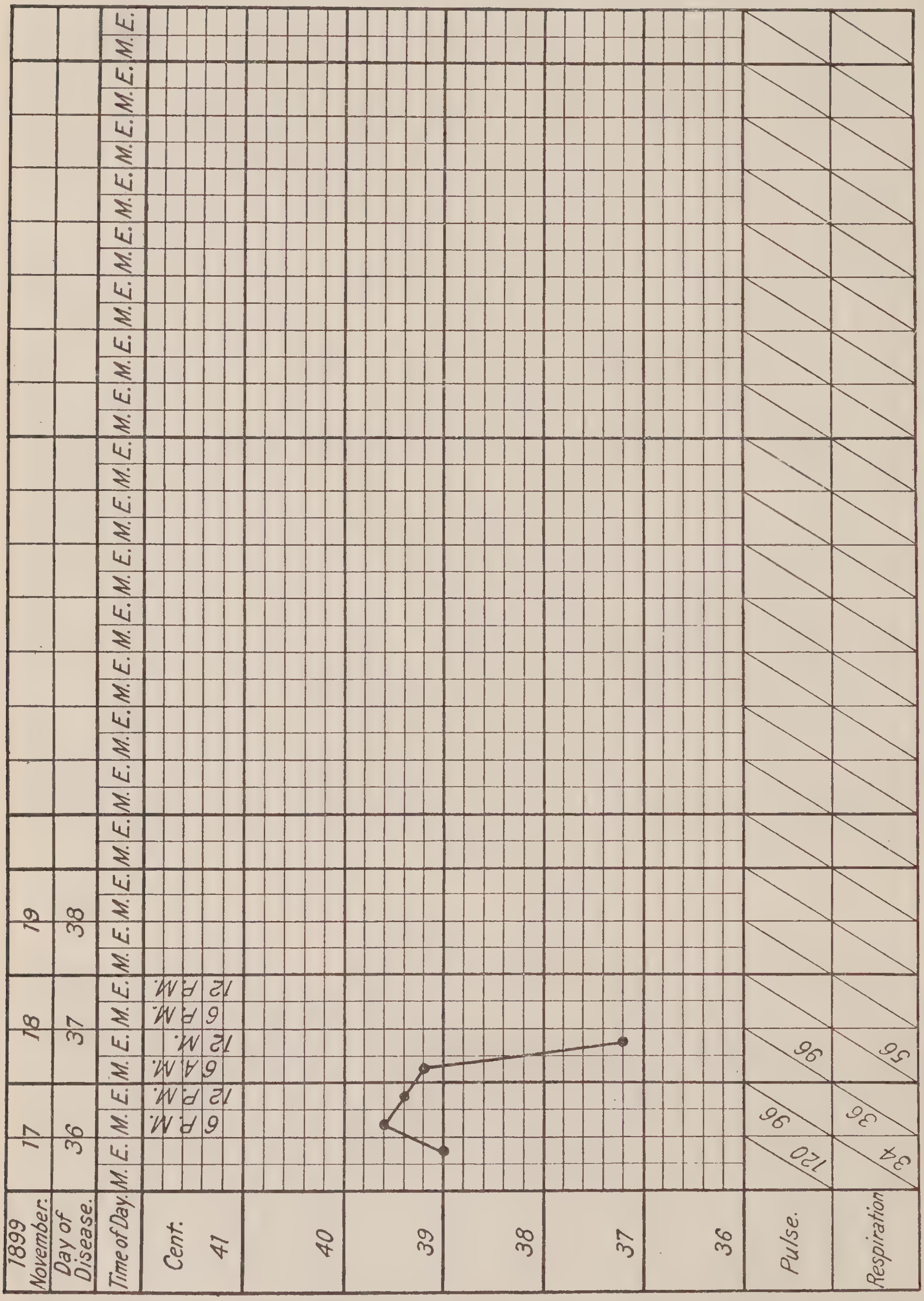
Perforation; peritonitis.

J. O.; aged 40 years; nativity Finland; admitted to the United States Marine Hospital, port of San Francisco, Cal., November 17, and died November 18, 1899.

History.—Present illness began about six weeks ago with feelings of chilliness and general muscular pains, followed by fever, diarrhea, anorexia, and insomnia. No epistaxis and no severe headache. Of late about 12 stools daily, but stools never contained blood. Painful cough and slight abdominal pain. Physical examination showed patient well developed and well nourished; dry râles heard over both lungs; heart sounds scarcely audible; abdomen not tympanitic, but very tender on pressure; a few rose spots observed. Temperature, 39° C.; pulse, 120; respirations, 34. Patient's mind was perfectly clear and his condition did not seem immediately perilous. Widal's test gave a positive reaction. Urine contained albumen, blood, and granular casts. During morning of following day patient's condition underwent marked change, temperature falling from 39.1° C. to 37.1° C., and respiration increasing in rapidity to 56 per minute. After vomiting a dark, apparently hemorrhagic fluid, patient died suddenly at 4.45 p. m. Treatment during his twenty-four hours' stay in the hospital was entirely symptomatic.

Note.—Patient contracted his disease at Cape Nome, Alaska, where a number of other cases of enteric fever present in this hospital also originated. The disease prevalent there has been referred to in the public press as "typho-malarial fever."

Necropsy (*twenty hours after death*).—The body of a well-developed, well-nourished, adult white male. Rigor mortis moderate. Post-mortem lividity extensive. Abdomen extremely tympanitic, so that in mammary line liver dullness is almost obliterated. Abdominal fat abundant. On opening the abdominal cavity a large amount of gas of fecal odor escaped. Omentum contains a considerable deposit of fat, and is adherent to intestines by bands of lymph, which are easily broken and apparently newly formed. Coils of intestine are also matted together by similar bands of lymph. Peritoneum covering intestines is red, sticky, and shows less luster than normal. Abdominal cavity contained a considerable quantity of fluid somewhat resembling pea soup and of an offensive odor. The fluid in the pelvic cavity was more feculent in character than that elsewhere. The appendix pointed downward to the pelvic cavity and was in relation with the sigmoid, being bound down by



[United States Marine Hospital, port of San Francisco, Cal. Name, J. O.; age, 40; disease, enteric fever.]

purulent, fibrinous adhesions. The left pleural cavity contained a small amount of serous fluid. There was a few rather firm adhesions at the base. The right pleural cavity also contained a small amount of fluid, but there were no adhesions. The external surface of the pericardium was covered with a thick layer of fat. Beneath the epicardium again a thick layer of fat. The right auricle distended with dark, semifluid blood, the other chambers of the heart almost empty. The heart weighed 437 grams. The pulmonary, semilunar, and mitral valve all appeared normal; the segments of the aortic valve slightly thickened. The ascending aorta showed slight evidence of atheroma. The endocardium lining left chambers of heart, as well as the intima of the ascending aorta, was of a deep-red tinge. The heart muscle was extremely flabby, pale in color, and apparently the seat of advanced fatty changes. The left lung weighed 700 grams, and was the seat of a uniform, intense congestion. It, however, crepitated throughout, and excised portions floated. The right lung weighed 685 grams and presented a similar condition to the left, with the exception that the congestion was less intense. The spleen weighed 285 grams. Its capsule was of a dark slate color and presented here and there newly formed patches of lymph corresponding to adhesions to neighboring organs. On section the splenic pulp was moderately pale and almost diffluent. The left kidney weighed 175 grams and was enlarged, pale, and flabby. Its capsule stripped off normally. The cortex was anæmic and perhaps slightly thickened; the pelvis contained an excessive amount of fat. The right kidney weighed 192 grams and presented a similar appearance to the left. In the intestines, about 50 cm. above the ileo-cæcal valve and opposite the attachment of the mesentery, was a small, clean-cut opening of about 1 cm. diameter. The tissue surrounding this opening was injected and covered with plastic lymph, which had apparently been torn away from adhesions. The external surface of the intestines showed constant evidence of torn adhesions. The mucous membrane of the sigmoid colon and appendix presented no abnormality. In the cæcum were a few small ulcerations. The distal side of the ileo-cæcal valve showed no ulcerations. The ileum just above the valve was markedly injected and thickened. Scattered throughout the lower portion of the ileum were numerous typical ulcers, generally situated opposite to the mesenteric attachment. The perforation above referred to was found to correspond to the middle of a small ulcer. Ascending the intestines, the highest ulcer was situated about 2 meters above the ileo-cæcal valve. The mesenteric glands were very slightly enlarged. No evidence of intestinal hemorrhage was found. The stomach contained a small amount of dark, grumous fluid, which appeared to consist in part of blood. The mucous membrane was markedly ecchymotic, especially posteriorly toward the fundus. The duodenum for a distance of 10 cm. below the pylorus was also markedly ecchymotic. The liver weighed 1,835 grams. Its external surface was of a deep slate color. On section this discoloration was found to extend into the liver substance for about 0.25 cm. The liver substance was flabby, pale, and anæmic. The brain weighed 1,545 grams and was perfectly normal in appearance.

W. M. W.
D. M.
J. M. G.

Malarial fever.

J. H.; aged 24 years; nativity, Kentucky; admitted to the United States Marine Hospital, St Louis, Mo., June 24, 1900. died June 29, 1900.

History.—The patient was in a dazed condition when he entered the hospital and was unable to give a history of his sickness. Temperature, 39.6°; pulse, 91; respiration, 44. There is dullness and increased fremitus over the lower lobe of the right lung; the respiratory murmur is feeble over the right lung, and crepitant râles are heard over this region. The breath sounds are louder than normal over the left lung and numerous mucus rales are present. The sputum is of a rusty color and contains numbers of pneumococci, but no tubercle bacilli. There is a slight cough. A loud mitral murmur is heard over the heart. The liver and spleen are slightly enlarged and the abdomen is somewhat tympanitic. The red corpuscles of the blood contain numerous unpigmented malarial organisms. The leucocytes are small in number. Widal's reaction is negative. There is a quantity of albumen but no bile present in the urine. The microscope shows numerous granular and epithelial casts. The diazo reaction is well marked. The tongue and lips are dry and covered with sordes, the tongue is tremulous and when the patient is requested to show it he protrudes it slowly and as slowly draws it back in his mouth. The patient's eyes are shut and he lies in a semiconscious condition. During his sickness the temperature frequently rose as high as 40.2°, and ice baths were constantly used to reduce it. Quinine was also given hypodermatically, but had no apparent effect on the temperature. The pulse ranged between 83 and 124, and the respiration between 27 and 53. After the second day the patient lay in a stupor from which it was impossible to arouse him, and food and medicines were given with difficulty. The plumonary symptoms improved so that when he died the left lung had entirely cleared up, and the right was greatly improved. The nervous symptoms were well marked, the patient sometimes trembling and shaking all over, especially when his temperature was allowed to get high. He did not perspire freely at any time during his sickness. On June 28, the Widal reaction was positive, a 1 to 20 dilution clumping in a few minutes. The patient gradually grew weaker and died at 8.15 a. m., June 29, 1900.

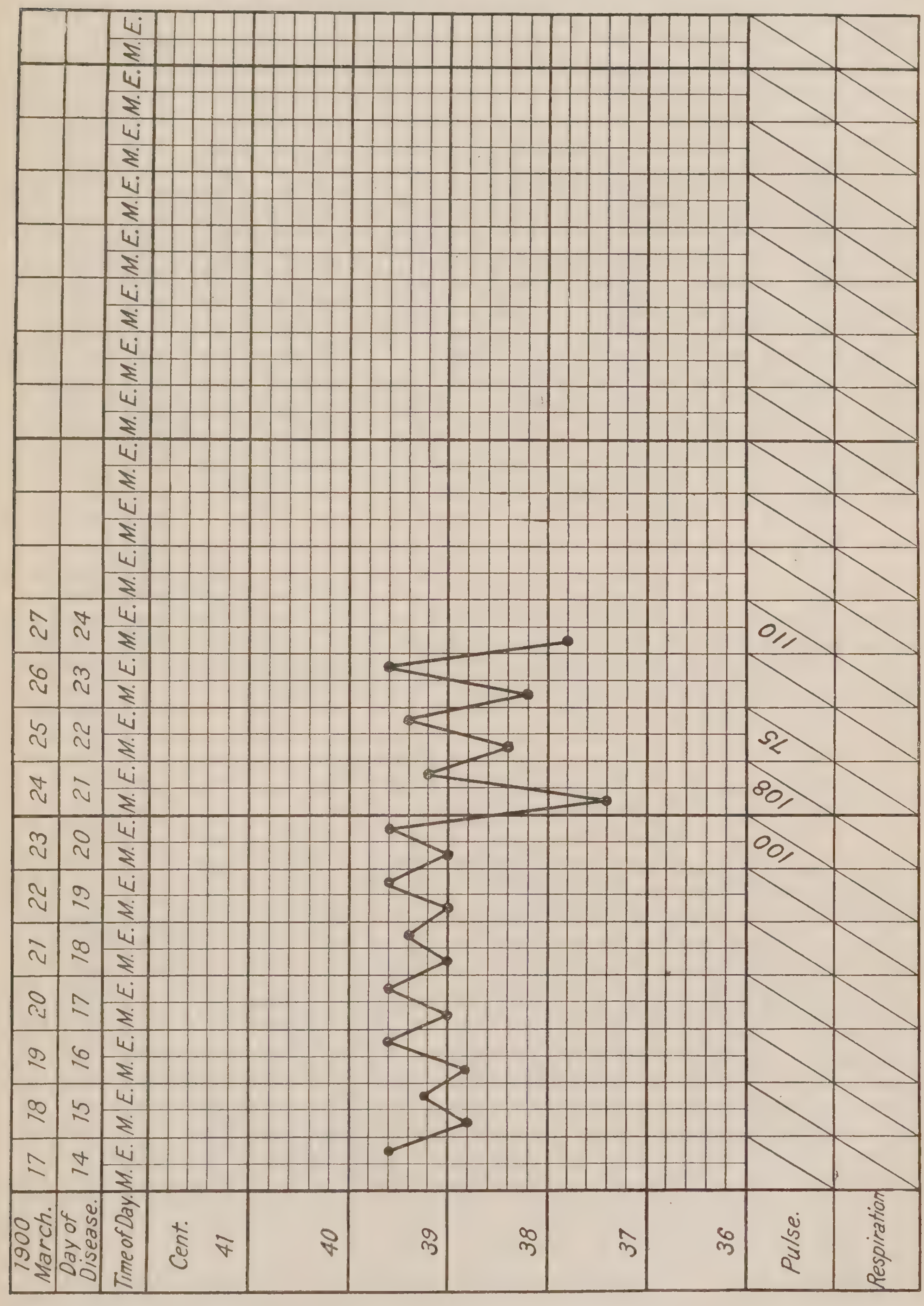
Necropsy (*eight hours after death*).—Body fairly well nourished; length, 171 cm.; rigor mortis slight. Brain very much congested; weight, 1,537 grams; measurements, 20 by 17 by 11 cm. There is a moderate amount of fat in the walls of the abdomen.

The transverse colon is lengthened and a portion dips downward 15 cm., a little to the left of the umbilicus. Omentum congested, contains very little fat. Color of intestines reddish gray. Pericardial fluid is of a light yellow color. Heart: Weight, 289 grams; measurements, 9 by 7 by 5 cm.; the cavities contain dark fluid blood, showing no evidence of coagulation; the leaves of the mitral valve are very much thickened; thickness of wall of right vertricle, 0.5 cm.; of left, 1.3 cm. Right lung: Weight, 549 grams; measurements, 24 by 12 by 6 cm.; it is attached above and behind to the walls of the chest; color, dark red; it is crepitant and blood and serum exude on pressure. Left lung: Weight, 260 grams; measurements, 19 by 15 by 8 cm.; color, light gray; it is also crepitant and blood and serum exude on pressure. Spleen: Weight, 480 grams; measurements, 20 by 16 by 5 cm.; color black, both internally and externally; consistency soft. Left kidney: Weight, 240 grams; measurements, 15 by 8 by 2½ cm.; cortical position 1 cm. thick, pyramids small, walls of blood vessels thickened, especially at base of pyramids. Right kidney: Weight, 239 grams; measurements, 13 by 8 by 4 cm.; tissue in the same condition as the left kidney. The lower 6 feet of the small intestines contain a great number of ulcers, ranging in size from a pea to 3.2 cm. in diameter, the longest diameter running in the same direction as the bowel. These ulcers are raised above the surface of the mucous membrane and they feel hard and indurated. The mucous membrane of the cæcum is one mass of thick indurated tissue, the inflammation also extending into the appendix for the space of 2 cm. The appendix is small and nonadherent; the cavity contains a small quantity of pus. The mesenteric glands are very much enlarged. Liver: Weight, 1,820 grams; measurements, 29.5 by 17.4 by 8 cm.; color externally, reddish-brown; internally, yellowish-brown, the yellow color being very marked; the tissue is normal in consistency and greasy to the touch. Unpigmented malarial organisms are present in large numbers in the red corpuscles of the blood taken from the heart and spleen; they are also present in large numbers in the capillaries of the pia mater, and blocks of pigment are seen around these vessels. The typhoid bacillus was obtained in pure culture from the spleen. The pus from the cavity of the appendix contained no tubercle bacilli.

B. F.; aged 24 years; nativity, Norway; was admitted to the United States Marine Hospital, port of San Francisco, Cal., March 17, and died March 27, 1900.

History.—Patient stated he had had a severe attack of dysentery one year ago, but denied all other serious diseases. Present trouble began about two weeks before coming to hospital, with vomiting, diarrhea (about 15 stools daily), complete anorexia, headache and occasional chills, fevers, and sweats, with a feeling of intense weakness. Examination on admission showed tongue dry and furred, the abdomen somewhat distended and showing marked tympany on percussion in all regions, with some gurgling on palpation. No marked tender spots were found and there were no roseolæ. For the first two days the patient improved slightly under treatment. The number of stools in twenty-four hours was reduced to 7, his headache improved, and the tympany and distension of the abdomen decreased somewhat. On the third day one roseola appeared on the lower part of the chest. The patient had some cough and some subcrepitant râles were audible near the base of the left lung. The pulse was rapid, but of fair quality. Later the diarrhea increased again, the patient's hands became markedly tremulous, and the pulse became weak and dicrotic. Enlargement of the spleen was noted and a few roseolæ appeared on the abdomen. The signs of trouble in the lungs became more marked and were noted on both sides of the chest. On March 25 the patient became stuporous and his pulse reduced to 75 per minute, remaining weak and dicrotic, his other symptoms continuing about the same. On the day following he had a very severe rigor, very weak pulse, and cyanosed skin. He rallied quickly from this, however, under increased stimulation. On the morning of March 27 he was found in a condition of shock, the pulse being exceedingly weak and irregular. His face was drawn and haggard. A marked increase in the distension and tympany of the abdomen was noted and there was incontinence of the feces. This condition was accompanied by only a slight fall in the temperature. The patient died on the evening of the same day, at 6.20 p. m. Treatment consisted of an exclusively liquid diet, free stimulation by whisky and strychnine, cold tub and sponge baths, a mixture of salol, bismuth subnitrate, and Dover's powder to meet the conditions in the intestines, and a stimulating expectorant mixture to control the cough.

Necropsy (*seventeen hours after death*).—The body is that of a well-developed, fairly well-nourished, adult, white male. Post-mortem rigidity moderate. Post-mortem staining marked, especially about the chest. The abdomen is distended and tympanitic. The abdominal fat normal. The abdominal cavity contains a large amount of purulent fluid. The anterior mediastinal glands are normal. The left pleura contains extensive adhesions. The right pleura contains a band of adhesions following the entire course of the second and third ribs. The left lung weighs 410 grams,



[United States Marine Hospital, port of San Francisco, Cal. Name, B. F.; age, 24 years; disease, enteric fever.]

is small and dark. Incision reveals engorgement throughout and hypostatic pneumonia in the lower lobe, the structure being firm but still slightly crepitant. The right lung weighs 460 grams and shows some congestion, but is crepitant throughout. The pericardium contains a slight excess of clear fluid. The heart weighs 310 grams. All the valves are competent. A few small atheromatous plaques are found at the beginning of the aorta. One segment of the aortic valve shows acute hyperemia. The pulmonary valves show the same condition. There is a large fibrinous clot in the right ventricle and a soft dark clot in the left ventricle. The liver weighs 2,260 grams. Its anterior surface is of a dark blue color, except on the left lobe and on the right border, where it is slightly pale. On section it appears quite pale and otherwise suggests parenchymatous change. The gall bladder is collapsed, containing a very small amount of bile. The spleen weighs 390 grams and is about twice the normal size. On stripping the capsule some of the splenic substance remains adherent. Section shows a reddish-brown surface with evidence of acute inflammation. The left kidney weighs 150 grams. The capsule strips easily. The cortex is rather pale and suggests parenchymatous change. The right kidney weighs 160 grams and is in all respects similar to the left. The intestines are distended with gas and very much inflamed, the coils being bound together by recent adhesions and covered here and there with flakes of purulent lymph. A few ulcers are visible in the lower part of the ileum through the serous coat. In the region of the ileocæcal valve adhesions are very firm, and lymph and pus are in very large amount. A perforation the full size of a Peyer's patch is found in the ileum about 7 cm. from the valve. The appendix is long, hyperæmic, and patulous. Numerous ulcers are found in the ileum over a length of about 1 meter. The cæcum is thickly studded with small ulcers. A few small ulcers extend along the colon as low as the sigmoid flexure; the mesenteric glands are markedly enlarged. The brain weighs 1,215 grams and shows evidence of recent inflammation of the pia mater over the upper surface of the cerebral hemisphere. Otherwise the brain is normal.

W. M. W.
R. L. W.
J. M. G.

Microscopic report.—Tubercle: Over large areas the lung tissue is replaced by deposits of homogeneous cheesy material, and made up chiefly of cellular detritus. Adjacent to these are areas of cellular infiltration, bordering on which the vessels are overdistended, some escaped cells being found in the interspaces.

F. J. T
J. M. G.

SECONDARY SYPHILIS.

Cirrhosis of liver.

J. D. C.; aged 56; nativity, California; admitted to United States Marine Hospital at New Orleans, La., January 30, 1900.

History.—Patient ran away to go to sea at age of 16; a year later contracted syphilis. Had pretty good health up till ten years ago, when the later symptoms of syphilis began to manifest themselves. Nodes appeared on ribs, tibia, and cranium. Gummata appeared in the throat. He has been irregularly treated since then. On admission to hospital he was found to be chiefly suffering from a large gummatous ulcer which had already destroyed the soft palate and pillars of the fauces. Slight ascites and œdema of legs was present. Urinary examination revealed albumen and hyaline and granular casts, both narrow and broad. Under local and constitutional treatment the ulceration of pharanyx was cured. The ascites, though, increased. On April 16 patient was tapped and 10 liters of ascites fluid withdrawn. The abdomen rapidly refilled, and a week later he was again tapped and 8 liters withdrawn. On May 9 he was tapped a third time and 12 liters withdrawn. Patient was very faint after withdrawal, but rallied after use of diffusible stimulants. He became weaker rapidly, lost strength, and emaciated rapidly; after this the abdomen never became tense again. He died at 6.45 p. m., May 27, 1900.

Necropsy (*9 a. m., May 28, 1900*).—Body of adult male, white, apparently aged about 60. Body is of medium stature, very much emaciated, especially about face, a dropsical effusion of abdomen, and some œdema of legs. Tattoo marks on both arms and on the left leg. Lividity of death on back of head, neck, and back; post-mortem rigidity had about passed away. Beginning decomposition apparent on abdominal median incision from interclavicular notch to symphysis pubis. On incision the abdominal wall was found to be free of fat, and the muscles themselves of considerable thinness. On opening the abdomen about 4 liters clear serum, in which free flakes of lymph were floating, escaped. Cartilages in front caused some difficulty in removing sternum, the pericardial sac contained about 15 c. c. clear serum. Heart about normal in size. On visceral pericardium were several large milk (atheroma) plaques, varying in size from that of a dollar to a pea. The tortuous course of the coronary arteries was also made evident by milk plaques following their course. The cavities of heart were filled with dark fluid blood partly clotted. Weight of heart, 230 grams; valves competent. Right lung adherent at apex by old strong adhesions, weight 780 grams. The lung was entirely consolidated except at apex, where it was crepitant. On section the consolidated portion was found to be in a state of red hepatization. Left lung was completely adherent at every point by old, strong adhesion; weight, 505 grams. The anterior margin of the left lung was membranous in thinness, thus diminishing size of lung and giving it an unusual shade. Whether this condition was congenital or as a result of atrophy from universal adhesions was not discovered. A hypostatic congestion was present in the dependent parts of this lung. The omentum was found to be retracted and adherent to anterior abdominal wall above. Appendix was not visible, but on following down the muscular bands of the caput cæcum coli it was found to be turned under and covered over by the latter structure and adherent to all structures in its situation by old, very thick adhesions. Bladder empty and contracted; several gummata about the size of large nuts containing a yellow cheesy débris were found on the peritoneal surface of floor of pelvis. The spleen was a little cirrhotic and with a thickend capsule; weight, 290 grams. Liver: Weight, 992 grams; surface irregular and tuberculated, studded with scars of old gummata. On section cirrhotic and granular. Gall bladder full of dark inspissated bile. Right kidney: Weight, 140 grams, small on stripping off capsule. It leaves a granular surface, cirrhotic on section; weight, left, 170 grams.

T. D. B.
A. H. G.

Extensive ulceration of the colon; gummata in the lungs.

P. E.; age, 31; native of Russia; admitted to the United States Marine Hospital, Chicago, Ill., July 25, 1899; died March 7, 1900.

Upon admission the patient stated that he contracted syphilis in 1896. During the past year he has suffered a great deal from diarrhea and pain in the abdomen with occasional vomiting, and has lost about 35 pounds in weight and feels very weak.

Present condition.—Patient very much emaciated, suffers a great deal from tenesmus during evacuation of the bowels. Extensive ulceration of the colon. Intestinal pain severe most of the time, vomits occasionally, skin yellow, lymphatic glands throughout the body enlarged and hard.

Treatment.—Under vigorous antisyphilitic treatment with occasional irrigation of the colon with solution of silver nitrate, substituting at times sterile water, together with concentrated diet, the patient was made more comfortable.

August 11, 1899.—Stricture of the rectum present.

September 21, 1899.—Continuous tenderness through the bowels.

February 23, 1900.—Suffers greatly from tenesmus. Frequent small loose stools, accompanied by severe straining.

March 1, 1900.—Fæces passed involuntarily at times. Very weak. Takes little nourishment.

Necropsy (*ten hours after death*).—Body greatly emaciated, rigor mortis just beginning in the muscles of the jaw, hypostasis slight. Heart normal in appearance; weight 260 grams. Both lungs contained nodules about the size of small hickory nuts, grayish in color on section. The left lung weighed 230 grams, the right 270 grams. Kidneys: Left weighed 130 grams, the right 155 grams. The cortical portion of the upper third of the kidneys was grayish in color, very hard and tough. Ureters normal. Bladder walls very thin. Liver pale, surface smooth, interstitial connective tissue increased slightly, weight 1,460 grams. Gall bladder normal. Suprarenal capsules normal; both together weighed 9 grams. Brain and membranes normal in appearance. Weight of brain 1,460 grams. Stomach and small intestines normal. Almost the entire mucous membrane of the large intestine had been destroyed by ulceration. The ulcers were sharply defined, varying in size from that of a 10-cent piece to several square inches. The bases were dull gray in color and in the center studded by small dark, almost black spots. About 12 cm. from the arms a stricture having a diameter internally of about 2 cm. was found. The cicatricial tissue was hard and inelastic. Great vessels and nerve trunks appeared normal. Pancreas and genito-urinary apparatus normal in appearance.

M. K. G.
H. W. S.

Laryngitis; broncho-pneumonia.

W. N.; aged 35 years; nativity, Germany; was admitted to the United States Marine Hospital, Chicago, Ill., September 30, 1899; died November 7, 1899.

This patient was admitted to the hospital August 16, 1899, with the following history: Fourteen years ago he contracted syphilis and was treated at this station. Four years later he again showed symptoms of the disease, and the secondary symptoms persisted for a year. July 1, 1899, he became very hoarse and later almost lost the use of his voice. After admission to the hospital, under specific medication his general condition was slightly improved. On September 19, 1899, he was discharged at his own request, but still unable to speak above a whisper. September 30, 1899, the patient was readmitted. His physical condition was very poor; he was greatly emaciated and unable to speak above a whisper. He could not take solid food, and the last few days that he lived even liquids at times would bring on a paroxysm of coughing for the reason that the epiglottis not fully closing the glottis, some of the liquid would enter the trachea. Potassium iodide and mercurial inunctions seemingly had but little effect, and recourse was had to palliative and supporting treatment. He gradually failed until death occurred from exhaustion, November 7, 1899.

Necropsy (*seventeen hours after death*).—Body is that of an emaciated and poorly nourished adult; white; male. Rigor mortis well marked. The calvarium was not removed. Thorax: Pericardium contained about 150 c. c. of fluid. Heart, normal; weight, 370 grams. Lungs: Extensive adhesions of the pleura on both sides. On section the lungs present evidence of a broncho-pneumonia, especially marked at the base. The bronchioles are thickened and filled with a muco-purulent secretion. About them are areas of consolidation which on pressure exude small drops of pus. The larynx and trachea were removed. The epiglottis was eroded and calcified, thus incompetent to close the glottis, and a contributing cause to the broncho-pneumonia. The interior of the larynx was perfectly smooth, not a vestige remaining of the superior and inferior vocal chords, the arytenoid and cuneiform cartilages, and the cornicula laryngis. The great vessels and nerve trunks were apparently normal. Abdomen: The omentum is normal, but thin. Spleen, normal; weight, 280 grams. The kidneys are normal; capsules not adherent. Left kidney: Weight, 200 grams. Right kidney: Weight, 180 grams. The urinary bladder contained a small amount of urine and was normal. Liver: Normal; weight, 2,250 grams. It is abnormally adherent to the diaphragm. The capsule is thickened and there are marked striations on the broad ligament. Pancreas, normal; weight, 90 grams. The mesenteric glands are enlarged and indurated. The small and large intestines are normal. Great vessels, normal. The spinal cord was not examined.

W. A. K.
H. W. S.

FRACTURE OF THE SIXTH CERVICAL VERTEBRA.

Paraplegia.

J. K.; aged 38; nativity, Ireland; admitted to United States Marine Hospital, Chicago, Ill., December 2, 1899; died December 4, 1899.

Clinical history, December 2, 1899.—Patient states that at 6 o'clock this morning he fell into the hold of his vessel, a distance of about 24 feet, striking on his head. He was brought to the hospital at 8 a. m. Examination on admission shows a contusion of the scalp and bruises on leg. Marked tenderness about the region of the sixth cervical vertebra, but owing to the unusual development of the muscles of the neck, no crepitus was elicited by manipulation with the force deemed safe to exert in the examination, although a fracture was suspected. Motor and sensory paralysis of all parts below the clavicles. Priapism and inability to pass urine. The respiration is jerky and no pulse to be felt at the wrist.

Treatment.—Between 8 and 12 o'clock three hypodermatic injections of strychnia sulphate (0.002 grams) were given, together with brandy and milk by mouth, followed by a marked improvement of pulse and respiration. The strychnia was continued every four hours. A hot pack was applied to the spine. The bladder was catheterized every eight hours.

December 3, 1899.—Treatment continued. The paralysis continues the same. Character of the pulse and respiration improved.

December 4, 1899.—The pulse again becomes very feeble at the wrist, face and neck are cyanosed, while the respiration is markedly jerky. The temperature arose to 38.8° while subnormal yesterday. The patient suffered but little from pain, complaining only upon movement of neck. At 12.45 p. m. the respirations ceased and he died in a few minutes.

Necropsy (*four hours after death*).—Body is that of a well-nourished and well-developed adult, white, male. No rigor mortis present. The cranial, thoracic, and abdominal cavities were not examined. The vertebral column extending to the first dorsal vertebra was removed and the sixth cervical vertebra was found fractured through both laminæ and the body of the vertebra comminuted. The cord in this region also gave evidence of softening.

W. A. K.
H. W. S.

FRACTURE AND DISLOCATION OF FIFTH CERVICAL VERTEBRA.

H. B.; age, 30; nativity, Tennessee; was admitted to United States Marine Hospital, Memphis, Tenn., December 17, 1899, and died December 17, 1899.

History.—Patient was injured about sixteen hours previous to admission to the hospital. While rolling a bale of cotton he slipped and fell in front of the bale and it passed over him, crushing him to the earth. He said he was unable to move any part of his body except his head after the receipt of the injury. The steamer arrived in port the following morning and he was brought to the hospital. Examination on admission showed complete paralysis of motion below the clavicle, but sensation extended nearly to the nipple on either side. Patient was able to rotate the head, and he had been doing this quite frequently, but an attempt to flex or extend the head caused severe pain in the neck. The muscles of the neck were rigid and pressure over fifth and sixth cervical vertebra caused intense pain. Temperature was 36.6 in rectum, pulse 53, and respiration 13. Respiration was wholly diaphragmatic. Bladder was catheterized, and about 1,000 c.c. of urine withdrawn. Priapism was also present. There were four large blisters on dorsum of right hand, which patient said were probably due to being burned on the stove near which he had lain during the night but had felt no pain. A diagnosis of dislocation of a vertebra was made and it was thought best to attempt reduction under chloroform. While this was being administered, and before narcosis was complete, the patient suddenly stopped breathing, and it required an hour of artificial respiration before breathing would continue unaided. Consciousness returned, but patient failed rapidly and died two hours later.

Necropsy (*twenty hours after death*).—The body was large and very well developed and nourished. Post-mortem discoloration was slight; rigor mortis very marked. On removing the larynx, trachea, and œsophagus the fifth cervical vertebra was found to be dislocated forward, the body of same projecting over that of the sixth to the extent of 1½ c. m. All the cervical vertebræ but the first were removed and a closer examination showed the spinous process and laminæ of the fifth to be broken away from the rest of the bone. The line of fracture on the right side was at the juncture of the laminæ with the articular processes and included the inferior articular process. On the left side it extended through the laminæ about 1 c. m. from the articular processes. The tip of the left inferior articular process of the fifth and of either superior articular of the sixth were also broken off. The spinal cord at the site of injury and to a distance of 7 to 8 c. m. above was a softened, blood-stained, structureless mass, but the membranes covering it were not ruptured. The brain weighed 1,300 grams, and it and its coverings were normal. Largynx and trachea were normal. Left lung weighed 580 grams, and the upper lobe contained several small calcareous deposits, as did also the lower lobe of right lung. Right lung weighed 810 grams. Left pleura was adherent over posterior surface. Heart weighed 380 grams, and was apparently normal. Liver weighed 1,880 grams and was normal. Gall bladder normal, ducts patent. Left kidney weighed 135 grams, right 126 grams, and both appeared to be normal. Spleen weighed 505 grams, color very dark red, and substance very friable. All other organs examined were apparently normal.

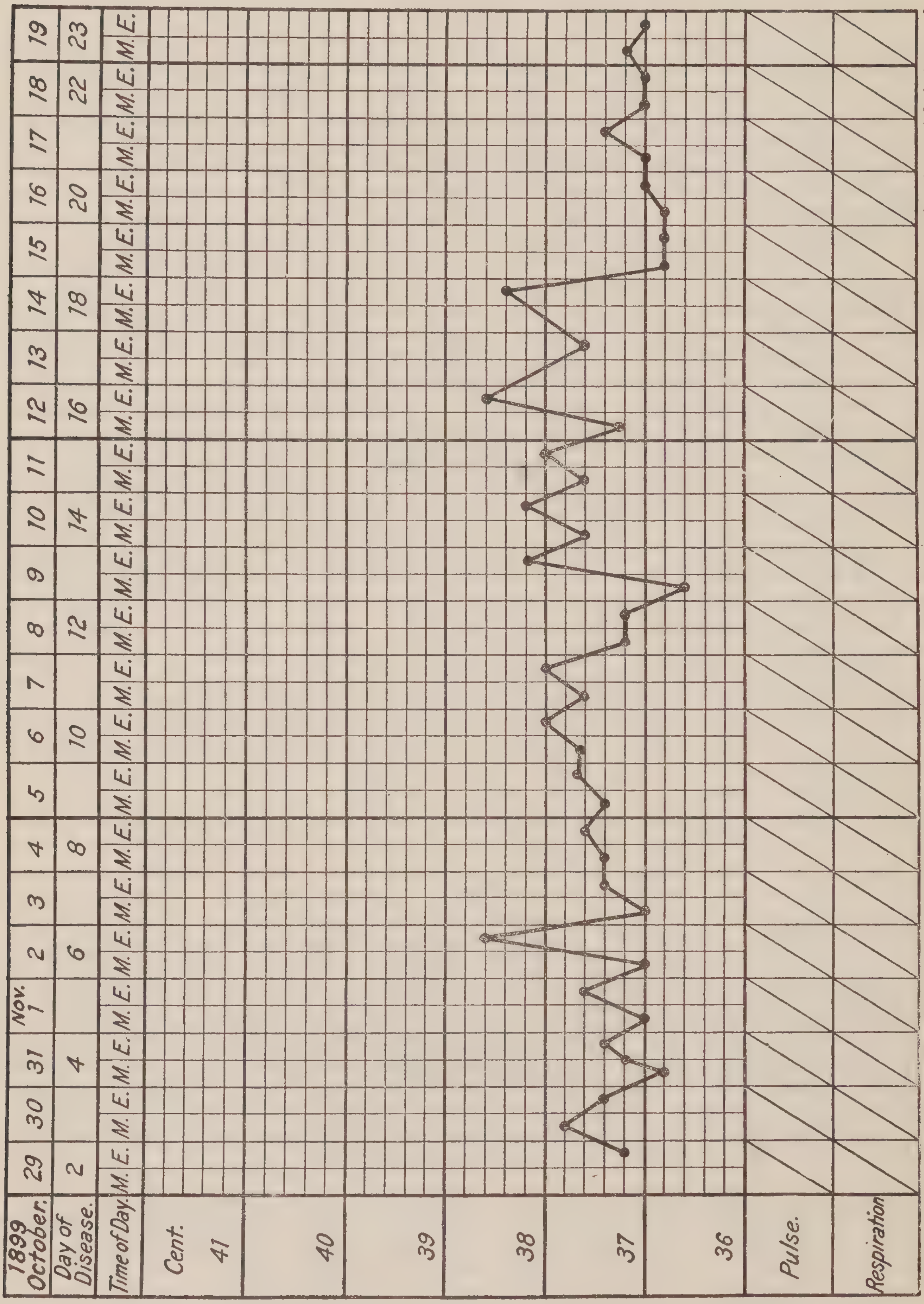
D. E. R.

SIMPLE FRACTURE OF SPINE, WITH COMPRESSION OF SPINAL CORD.

Paraplegia; ischiorectal abscess.

T. W.; aged, 40 years; nativity, Ireland; was admitted to the United States Marine Hospital, port of San Francisco, Cal., October 29, 1899, and died January 20, 1900.

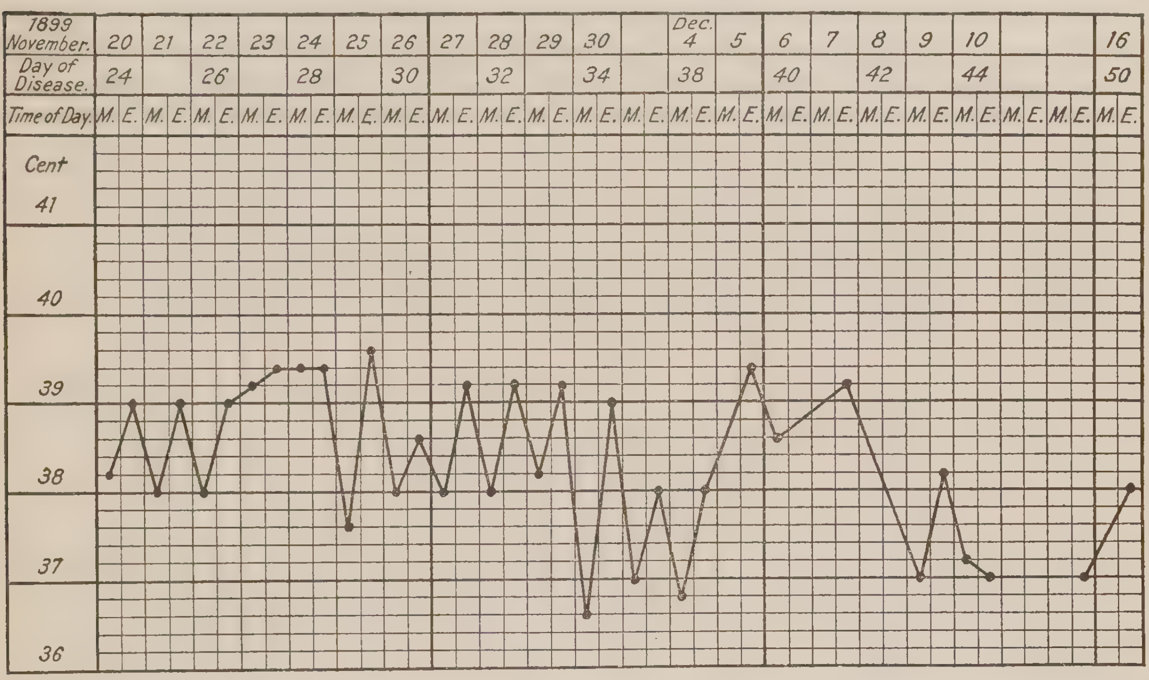
History.—Patient was found unconscious in the hold of a recently discharged collier. He had probably fallen some 30 feet. On regaining consciousness he complained of pain in the lower dorsal region. On examination the spinous process of the eighth and ninth dorsal spines were apparently more prominent than those above and below. Paraplegia and dribbling of bloody urine. On sounding an obstruction was met in the bulbous portion of the urethra, supposedly a stricture, beyond which the urethra appeared disorganized. After much very careful manipulation a filiform bougie was gotten into the bladder and the urethra divulsed. A gum catheter then withdrew 1,500 c. c. of bloody ammoniacal urine. Complete anæsthesia extended up as high as a line about the anterior superior spines of the ileum, and in the median line about 5 or 6 cm. above the root of the penis. The plantar and patellar reflexes were absent; the sphincter ani was paralyzed. November 30, 1899, the tactile sensation was increased, the prick of a pin being felt on the upper half of the left thigh, but no improvement on the right. The patient soon voided his urine and feces unconsciously. On November 11 an ischiorectal abscess about the size of a hen's egg was incised and its purulent contents evacuated. Regardless of prophylaxis and



[United States Marine Hospital, port of San Francisco, Cal. Name, T. W.; age, 40 years; disease, simple fracture of spine with injury of the spinal cord. Compression paraplegia.]

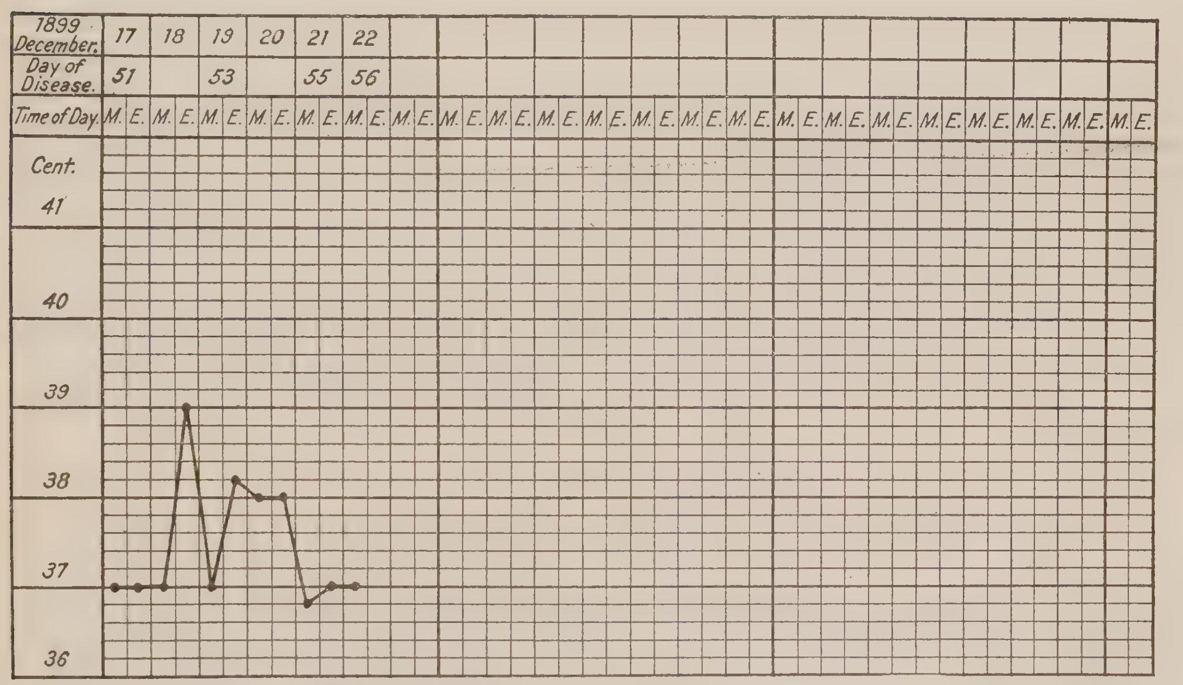
treatment, a bedsore 20 cm. in diameter developed in the lumbar region. The treatment was supportive and symptomatic, notwithstanding which patient continued to gradually become weaker until he died, January 20, 1900, at 9.50 a. m.

Treatment was unfortunately of the simplest. On October 30 a plaster-of-paris jacket applied to trunk while patient was suspended, and frequent catheterization had. Two attempts, one under chloroform, one under ether, were made to cut down upon the displaced vertebra to relieve the evident compression of the cord. Each was reluctantly abandoned by reason of alarming heart symptoms and threatened asphyxiation.



[United States Marine Hospital, port of San Francisco, Cal. Name, T. W.; age, 40 years; disease, simple fracture of spine with injury to spinal cord. Compression paraplegia.]

Necropsy (*seven hours after death*).—The body is that of a muscular, somewhat emaciated adult, white male. Post-mortem rigidity slight. Post-mortem lividity well marked. Over the sacral and lower part of lumbar region of the back is a large bedsore. On cutting down on spinal column find no lesions of spine or arches except of the eleventh dorsal vertebra, which is probably an extension of the bedsore. On



[United States Marine Hospital, port of San Francisco, Cal. Name, T. W.; age, 40 years; disease, simple fracture of spine with injury to the spinal cord. Compression paraplegia.]

exposing cord find a marked depression in it, just at the beginning of the lumbar enlargement, due to pressure of the arch of the eighth dorsal vertebra. On removing cord and membranes a fracture of the body of the eighth dorsal vertebra is found, the upper fragment being pushed 0.5 cm. forward and the lower fragment projecting backward onto the cord. The cord above and below does not seem smaller in size than normal, and is symmetrical in form. The brain weighs 1,420 grams and is normal to the naked eye. On opening the abdomen find the mesenteric fat scanty. The bowels are distended and no adhesions are present. Bladder is contracted and feels hard and thick. The diaphragm is on a level with the fifth rib. The pericardium is normal, containing a normal amount of fluid. The heart is markedly fatty. It weighs 350 grams, and the valves are normal. The left ventricular wall is slightly thickened. The left lung weighs 550 grams, and is normal. The right pleura has a few old adhesions to the chest wall. The right lung weighs 765 grams, and is œdematous. The spleen weighs 225 grams, presents a very dark, beefy appearance on cut section, and is harder than normal. The left kidney is pale; its capsule strips easily, leaving a smooth surface. The left kidney weighs 145 grams. The right kidney weighs 140 grams and resembles the left. The liver weighs 2,500 grams; it is larger than normal and presents the appearance of fatty degeneration.

M. E. S.
H. A. S.
J. M. G.

FRACTURE OF RIBS.

Injury of scalp and shoulder, with traumatic pneumonia.

P. M.; aged 28; nativity, England; admitted to United States Marine Hospital, port of New York (Stapleton), January 22, 1900; died February 12, 1900.

Family history, negative; previous history, negative; present condition, wound of scalp, shoulder, and chest (fracture of ribs).

History of injuries.—Injuries received one week ago at sea. Patient was coming from forward square and going to engine room when a sea carried him against ship's rail and hurled him to opposite side of ship against anchor, producing wounds and unconsciousness. Consciousness returned next morning. Immediately after accident he was placed under care of ship's surgeon and remained under his care until 4.30 p. m. to-day (January 22, 1900).

Physical examination.—Inspection: Wound of scalp had been sutured by ship's surgeon. Right side of chest was found strapped with adhesive plaster. Over right shoulder there is marked ecchymosis and swelling. The scalp wound consists of two lacerated wounds, which diverge from a point over bregma anteriorly, and both terminate posteriorly over occiput. There is a third laceration extending laterally from junction of first two wounds to a point corresponding to pterion on right side of skull. A considerable area of both parietal and frontal bones exposed. Palpation reveals extreme tenderness, especially marked over right side and posterior aspect of thorax and over region of right kidney and floating ribs; also on external aspect of right leg from knee down. Left eye shows subconjunctival (ocular) extravasation of blood. Bowels, constipated; pulse, 112; temperature, 39; respiration, 32.

January 23, 10.30 a. m.—Patient etherized, head shaved completely, wound irrigated and new sutures introduced, drawing flaps of wound together and covering as much as possible of exposed portion of skull, dry sterilized dressings applied. Patient was under anæsthetic half an hour and reacted well.

January 25.—Scalp wound doing well, but patient is otherwise apparently worse. Temperature, 38.6; pulse, 120. Pain in side and right shoulder. Stimulants and anodynes given.

January 27, 9 a. m.—Pulse weak, 110; volume fair; temperature, 38; pain in right side. Stimulants and anodynes continued.

On February 5 fluctuation could be detected on right side. Abscess of connective tissue evacuated. Hæmatoma over shoulder also suppurated. Both cavities drained and packed with dry gauze. Stimulants and anodynes continued, and hot-water bottles were kept constantly applied to extremities. On February 8 temperature, 38.4; pulse, 140. A counter opening made in back and gauze drainage passed through underneath the skin from opening in side to opening in back. He had constant pain in right side of chest, but there was no cough or bloody expectoration; patient grew progressively weaker. Death occurred at 12.55 a. m., February 12, 1900.

Necropsy (*fifteen hours after death*).—Post-mortem rigidity well marked. Suggilations faint in dependent portions of body. Pupils equal and moderately dilated. Incision from suprasternal notch to pubic symphysis. Subcutaneous fat small in amount. Anterior mediastinum, fat normal in amount, otherwise negative. Remains of thymus negative. Pericardium contains 100 c. c. of serous fluid. Heart normal in size and position. Coronary veins engorged. Fat around heart more abundant than usual. Large quantity of dark fluid blood in aorta. Dark clotted blood in inferior vena cava and superior vena cava. Valves normal. Lungs, right, adherent posteriorly and to some extent laterally at seat of fracture. On removing the lung and breaking up the adhesions about 100 c. c. of pus was found in a circumscribed area at seat of fracture. The fourth, fifth, and sixth ribs fractured near junction with spine. Weight of right lung 530 grams, slightly congested, but otherwise not affected, except at the small circumscribed area mentioned. Floated in water. Left lung showed on cut section pneumonia in stage of gray hepatization. Pleura slightly adherent; weight 1,460 grams. Liver normal. Both kidneys normal. Spleen normal.

C. W. V.
G. W. S.

FRACTURE OF RIBS WITH INJURY TO LUNG.

Emphysema and hemorrhage.

H. B.; aged 31 years; nativity, Nova Scotia; admitted to United States Marine Hospital, Portland, Me., July 13, 1899, 3 p. m.; died July 13, 1899, at 9 p. m.

On admission to hospital patient was perfectly conscious, but very weak. Said he fell, about three hours previous, from the foremast to the deck of his vessel, a distance of probably 30 feet, and struck on the right side of his back. Was unconscious for some time, and, upon regaining consciousness, found it difficult to breathe—each inspiration increasing the pain on right side. Nose bled some from a local injury, but no history of hæmoptysis. Physical examination showed an unimportant injury to nose as the cause of the epistaxis. Pupils equal and normal. Respiration hurried, and the pulse too feeble and fast to be counted. Emphysema of right side of body, both anteriorly and posteriorly, extending to the clavicle above and Poupart's ligament below. Brush burn over the inferior angle of right scapula about size of palm of hand and a bruised condition of the tissues immediately adjacent. Several ribs found to be broken posteriorly on right side and the lung punctured, as shown by emphysema and the symptoms of internal hemorrhage. Urine passed soon after admission, which was normal.

Small hypodermic of morphia administered to allay pain and stimulants (strychnine, whisky, and glonoin) were freely given hypodermatically with but little or no effect upon the pulse. Patient gradually grew weaker and died at 9 p. m., six hours after admission.

Necropsy (*thirteen and one-half hours after death*).—White man; about 5 feet 9 inches in height; weight about 165 pounds; large frame and muscular. Post-mortem lividity and rigor mortis marked. Emphysema on right side of body, anteriorly and posteriorly, from the clavicle to Poupart's ligament. The right pleural cavity contained a quantity of dark-colored blood. After removal of the thoracic viscera the first four ribs were seen to be the only ones of the right side which were not fractured. The fifth, sixth, seventh, and eighth ribs sustained two fractures, each near the vertebral column, 2 inches apart, and lacerating the pleura and lung. The four lower ribs were each fractured near the vertebral column. Right pleura was considerably torn and the lung deeply lacerated on posterior surface, corresponding to the fractures, and partially collapsed. Left lung considerably congested, but otherwise normal. Heart and the abdominal viscera were apparently normal. Brain was not examined as there were no symptoms indicating a lesion here.

J. McM.

LOCOMOTOR ATAXIA.

Aneurism of thoracic aorta.

H. J.; aged 35 years; nativity, Norway; admitted to United States Marine Hospital, Stapleton, Staten Island, N. Y., December 9, 1896, and died April 28, 1900.

Was in hospital from November 27, 1895, to December 8, 1896, with sprained ankle and inflammation of connective tissue of leg; readmitted for sclerosis of spinal cord, posterior column. Unable to walk unassisted; patella reflex is absent; muscles weak. Has hyperæsthetic point on inner side of lower leg about size of a pea. Complains of pains in knees. Phenacetine, 0.300 t. i. d.; sodii salicylatis, 0.600 t. i. d. Urine: 1.015; alkaline; slight amount of albumen; no sugar; heavy precipitate. General condition much the same; pain more or less constant, at times necessary to give him morphine to relieve his sufferings. Pulse ranged from 80 to 90. Strychniæ sulph., 0.003 t. i. d.

July 1, 1897.—Vomited last night; had chills this morning, followed by fever. Quinine, 0.300, repeated every hour until three are taken.

July 3.—Much improved; no more chills; temperature down to normal.

July 30.—Had chills, followed by fever (39.4) and sweat; given quinine, which controlled fever.

August 15.—Had chill, fever, and sweat; quinine continued.

August 18.—General condition much the same; no chills or fever; bowels costive; given cathartics to keep them open; strychnine stopped, as was also phenacetine and salicylates. Acetanilid, 4; citrated caffeine, 2; capsules No. 12. Signa: One every two hours.

August 21.—Had chills and sweat; quinine, 0.300 every four hours.

September 6.—Pain not so severe; no recurrence of chills and fever; quinine stopped. Strychnine sulph., 0.003 t. i. d.

November 12.—Complained of pain in side. Belladonna plaster; apply to side.

January, 1898.—General condition poor; pain more or less constant; given phenacetine, acetanilid, and antipyrine at different intervals to control it.

March.—Complains of pain in his left axilla.

March 21.—Had chills and fever, followed by lightning-like pains in his legs. Morph. sulph., 0.016; quinine, 1.32 t. i. d.

March 26.—Pains relieved; quinine reduced one-half.

June.—Bowels costive; urinates frequently and small amount at a time; pupils do not respond to light; no patella reflex; can not stand without holding something; incoordination of movements while walking; no pain in abdomen or elsewhere. Quinine sulph., 0.300 t. i. d.; silver nitrate, 0.016 t. i. d.; acid hydrobromic dil., 15 gtt. t. i. d.

June 23.—Pain in right knee. Chloroform liniment; sig., apply to knee. Had chancer in 1883. Sol. potass. iodide, gtt. 20 t. i. d.

August.—Had shooting pains in both sides.

September.—Sensation in legs much improved.

October.—Jugular pulsation evident; apex beat located 3 cm. below nipple and 1 cm. outside nipple; heart hypertrophied. Radial pulse strong and regular. Over apex a blowing diastolic murmur heard. Over aortic and pulmonary valves double murmur heard. Had pain in left side and left shoulder. Still has shooting pains in legs.

December.—Complains of nausea. Stop all medication. Liq. potass. arsen., gtt. 5 t. i. d.

January, 1899.—Physical examination: General nutrition good; eyes bright; pupils do not respond to light. Lungs: Relative dullness left apex, with increased fremitus and prolonged expiratory murmur. Heart: Soft, blowing, diastolic murmur over aortic orifice, transmitted to apex and into vessels. Reflexes, both superficial and deep, absent. Ulcer over left leg just below knee. Anæsthesia of both legs; can not stand without assistance. Shooting pains in right leg, running from knee to hip. Receiving pil. phosphorus, 0.001 t. i. d.

March.—Wound over tubercle of tibia is quite indolent; dressed with balsam of Peru.

September.—Had chill, fever, and sweat yesterday. Quinine sulph. 0.6 t. i. d.

January, 1900.—Severe pain in abdomen and chest. Fullness and tumor over sigmoid flexure; evidently accumulation of fecal matter. Given enema of soap and water; second and larger enema given with good results. Enema continued and tumor soon disappeared.

January 12.—Bowels move voluntarily. Sat. sol. potass. bromide. Sig. 10 c. c. at night. Tinct. nux vomica 10; elix. aurantii, 50; aqua qs. 100 c. c. M. signa 5 c. c. t. i. d.

January 15.—Potass. brom., for wakefulness at night, stopped; ordered sulphonal 1 instead.

February.—Bowels kept open with cathartics; doesn't sleep well at night; sulphonal stopped, and ordered Magendie's sol., min. 7, instead. Complains of pain in left side, which is referred to left shoulder; general condition, poor.

April 3.—Pain still troublesome, and given morphine to control it; bowels inactive; massage of abdomen over descending colon prescribed; high rectal enema and digital evacuation brought away large amount of scybalous fecal matter.

April 12.—Has cough, with muco-purulent expectoration. Examination of lungs shows numerous mucous rales over both sides, anteriorly and posteriorly. Ammon. chlor., 2; ammon. brom., 2; aqua, 100. M. sig. 5 c. c. t. i. d.

April 27.—General condition poor; pain in side severe; controlled with Magendie's solution. Cough not as bad as it was. Pulse rapid. Bowels inactive. During the night, about 12 o'clock, complained of severe pain in chest and of great weakness; was restless; pulse rapid and feeble; respiration rapid and shallow; general condition rapidly grew worse, and he died at 3.30 a. m. April 28, 1900.

Necropsy (*held thirty-three hours after death*).—Body appears exsanguinated; rigor mortis well developed excepting left lower extremity, where muscles are quite flaccid; suggillations marked in dependent portions of body; pupils moderately dilated, eyes glazed. Incision made from suprasternal notch to symphysis pubes. Small amount of subcutaneous fat; muscles poorly developed; tissues marked anæmic. Anterior mediastinum, normal. Remains of thymus gland, negative. Pericardium: Displaced upward. The pericardial sac is smooth, glistening, and contains about 75 c. c. of clear, straw-colored fluid. Heart: Arrested in systole; displaced similarly to pericardium. Opened in situ: Left ventricle contains small amount of fluid blood; valves incompetent, according to hydrostatic test; mitral orifice admits three fingers; edges of valves are thick and atheromatous. Aortic valves: Edges are thick and atheromatous. Tricuspid orifice large, and valves do not completely close it. Muscles of left ventricle hypertrophied. Tissues of heart, anæmic. Coronary arteries patent. Weight of heart, 350 grams. Left pleura: Cavity contained about 1,200 c. c. of fluid blood and about 1,420 grams of clot, which were found occupying cavity, excepting at apex where lung was bound to parietal pleura. Lung displaced upward and inward, and in condition of partial collapse. In posterior portion of pleural cavity a large sacculated aneurismal sac, coming from beginning of descending portion of thoracic aorta, found. Tumor extended externally about 9 cm., and measured about 11 cm. in length. It contained a large blood clot and had opening at external extremity where blood escaped. Opening between aorta and sac about 1 cm. in diameter. Aneurism lay on bodies and pedicles vertebræ and extended from fifth to ninth rib, externally about as far as angle of ribs. Pedicles of sixth and seventh dorsal vertebræ and the seventh and eighth ribs were necrosed, and ribs were fractured. Right pleura shows extensive adhesions to lungs, especially at apex. Left lung: Weight, 280 grams; small; external surface pigmented; anæmic; floats and crepitates. Right lung: Weight, 450 grams; floats and crepitates; external surface pigmented; at apex find a tubercle about size of English walnut; upper two lobes anæmic; lower lobe congested; bronchial vessels in both lungs contain considerable purulent exudate, and muccus membranes of them are thickened and rough. Great vessels of thorax outside show no other gross pathological findings than those already described. Nerve trunks, negative. Diaphragm, normal. Omentum: Markedly anæmic, otherwise normal. Spleen: Normal position; slightly enlarged; weight, 165 grams. Splenic pulp, normal. Left kidney: Normal position; weight, 130 grams; capsule, nonadherent; markings very distinct; cortex shows extensive fatty degeneration. Right kidney: Normal position; weight, 115 grams; markings not so distinct as in left kidney; cortex shows extensive granulo-fatty changes. Urinary bladder distended; contains about 150 c. c. of clear, straw-colored urine. Muscles of bladder thickened. Prostate gland somewhat enlarged. Seminal vesicles, normal. Penis: Has several venereal warts on corona glandis, and an indurated scar on corona glandis. Urethra, normal. Testicles, normal. Stomach, normal. Duodenum, normal. Gall ducts, patent. Liver: Small; weight, 1,220 grams; anæmic; cuts hard, and shows fatty changes. Pancreas: Weight, 50 grams; normal on cut section. Small and large intestines, normal. Skull cap removed: Calvarium, normal; membranes, normal; blood vessels and sinuses contained very little blood; large amount of straw-colored fluid in cerebro-spinal canal. Brain on section, normal on gross findings. Spinal cord of dorsal and lumbar regions removed, and is being hardened.

J. M. K.
G. W. S.

Degeneration of spinal cord, posterior columns.

J. W.; aged, 47 years; nativity, Ohio; admitted to the United States Marine Hospital, Cincinnati, Ohio, April 14, 1893; died, March 4, 1900.

History.—The patient was transferred from Cleveland to this station with a diagnosis of locomotor ataxia. When received he was in the ataxic stage, having the characteristic gait, lightning pains, absent reflexes, gastric crises, and the Argyll-Robertson pupil. He gave a specific history, and stated that he had always been a hard drinker. The patient gradually lost the power of walking, and for the last two years has been confined to a roller chair, being paralyzed in lower extremities. For the pains in chest and lower limbs morphia had to be administered. Emaciation became extreme, and toward the last a crop of bed sores appeared in the sacral region. The patient was also a sufferer from bleeding piles. Hypostatic congestion of lungs set in, and the patient died at 10 p. m. March 4, 1900.

Necropsy (*twelve hours after death*).—Body that of an extremely emaciated white man. Rigor mortis marked. Bedsores over sacrum were partially healed. Hemorrhoids quite large. Brain and its membranes, normal; weight, 1,470 grams. Spinal cord: The dura found reddened in the dorsal and lumbar regions. Evidence of an increase of connective tissue throughout the cord, especially in dorsal and lumbar regions. Lungs: Right lung found deeply congested at base; weight, 810 grams. Left lung showed moderate engorgement; weight, 660 grams; heart, normal; valves, competent; large ante-mortem clots in both ventricles; weight, 300 grams. Abdomen: Liver cirrhosed, and spleen normal; weight, 1,380 grams, and 135 grams, respectively. Stomach, intestines, and mesenteric glands found to be in a normal condition. Kidneys were normal in size, each weighing 180 grams.

H. S.
J. M. E.

SARCOMA OF FEMUR.

Metastatic growths in lungs and other organs.

G. W. A.; aged 48 years; nativity, Sweden; admitted to marine ward, St. Vincent's Hospital, Portland, Oreg., March 16, 1900, and died May 10, 1900.

History.—Family history not obtainable. In 1880, through accident, patient lost left arm at shoulder joint and sustained severe contusion of left thigh. Earliest symptoms of present illness were noted by patient about the middle of December, 1899, viz, slight shooting pains in left hip, knee, and foot. Pain increased, regidity developed so that on admission almost unable to walk. Other symptoms were slight cough, anorexia, and loss of flesh. Examination on admission showed upper part of left thigh to be the seat of a fusiform enlargement. The tumor was of hard consistence and was slightly tender on pressure. Superficial veins prominent; mobility of hip joint limited; circumference of left thigh 12 cm. greater than that of right.

March 25.—Cough severe; sputum blood-streaked; urine negative.

April 12.—Tenderness on pressure over third right rib.

April 23.—Friction rub felt at base of left lung.

May 8.—Severe attack of dyspnœa. Physical examination showed marked dullness over right upper lobe; breath sounds over this area feeble; tactile fremitus diminished. Area of movable dullness at left base. Hard subcutaneous nodule in region of right anterior axillary fold. Circumference of left thigh 22 cm. greater than that of right.

May 10.—Death followed severe attack of dyspnœa. Throughout period of observation, temperature was of a markedly remittent type, reaching at times an elevation of 39.2°, but never falling to normal. Treatment apart from administration of Fowler's solution was entirely symptomatic.

Necropsy (*eighteen hours after death*).—Body slightly emaciated; lower extremities somewhat œdematous. The pial vessels rather prominent; otherwise the brain and its coverings show no noteworthy abnormality. The small subcutaneous nodule, in axillary fold found on section to be a solid tumor resembling growths about to be described in other portions of body. Left pleural cavity contains 1,000 c. c. of serous fluid. Right pleural cavity is obliterated by firm adhesions. Heart is rather pale and flabby, but otherwise pericardium and its contents are normal. The surface of the left lung presents a number of button-shaped elevations, firm and of a yellowish-white color, the largest of which are 2 cm. in diameter. On section these growths exhibit a roughly hemispherical form, the flattened surface being in contact with the chest wall. Their substance is of fairly firm consistence, color ranging through various shades of white, pink, and yellow. On section this lung presents a number of growths similar in structure to those described on the surface except as to their more rounded form. The lower lobe contains a large tumor, ovoid in form, maximum diameter being 7 cm.; shows evidence of degenerative changes. The largest growth in the upper lobe measures 4 cm. in diameter. The right lung is more extensively involved by the morbid process than the left, its entire apex being replaced by tumor. This growth is of firm semicartilaginous consistence, and shows but slight macroscopic evidence of degeneration. Its maximum diameter measures 8.5 cm. Numerous nodules of various sizes are scattered throughout this lung, some of which show degenerative changes. Both pleural membranes are involved as well as the right third rib in a position corresponding on the surface of the body to the subcutaneous nodule previously mentioned. The abdominal viscera, normal; abdominal lymph nodes, enlarged, some of which attain the size of a hen's egg and on section show appearances similar to the previously described pulmonary growths. The upper portion of the left thigh is the seat of a fusiform enlargement. On incision beneath the sartorius a large new growth of the femur is exposed. Externally this tumor is surrounded by a very thin layer of fairly dense osseous tissue, the tumor substance within being composed of a dark-red semipulpy mass containing a sparse amount of calcareous material.

D. M.

GLANDULAR CARCINOMA.

T. R.; aged 22 years; nativity, Mississippi; admitted to the United States Marine Hospital, St. Louis, Mo., June 21; died July 22, 1899.

History.—When the patient came to this hospital he complained of pain in his left leg. This leg was very much swollen, pitted upon pressure, and had a small ulcer on its inner aspect. The patient stated a quantity of water had escaped from the leg when the skin ruptured three days before. The right leg was also swollen, but not as much as the left. His legs had been in this condition three weeks, previous to which time he said he had never been sick. The patient was a man of weak intellect, and would say "yes" to nearly every question asked, so very little dependence could be placed in his statements. The other patients informed me that he was a hard drinker, practically lived on whisky, as he ate or drank very little else. The physical examination showed that there was dullness over apices of both lungs; the respiratory murmur was harsh and rough on the left side, and moist crackling râles were heard on the right side. Heart normal, and liver not enlarged. Sp. gr. of urine, 1.009; small quantity of albumen and numerous hyaline and epithelial casts present. Temperature 38, pulse 94. His temperature returned to normal the next day and remained so until June 28. During this time he did not appear to suffer any pain, and the only symptom which attracted attention was his entire loss of appetite. He would eat nothing but a little soup and drink a small quantity of milk. On June 30 he had an involuntary movement of his bowels while asleep, and the next day his bowels were loose, passing a quantity of dark yellowish matter. He had no vomiting or pain in his stomach, and was walking around the ward most of the day. That evening his temperature was 38.2. The next morning at 1 a. m. he had a severe hemorrhage from his bowels, passing 400 or 500 c. c. of blood, and when I saw him a few minutes afterwards he was in a state of collapse; pulse 100, hardly perceptible at wrist; skin cold; respiration sighing, 30 to the minute. Under proper stimulation he recovered and rested well the rest of the night. At 9 a. m. his pulse was 114, full and strong at the wrist; respiration 32, irregular and of a labored, jerky character; abdomen tympanitic; temperature normal. The patient paid no attention to anything around him, but would answer questions when aroused. At 11 a. m. he had another severe hemorrhage, and he died in a few minutes.

Necropsy (twenty hours after death).—Body well formed and tissue well nourished, reddish fluid exuding from mouth. Height, 156 cm. Scalp firmly attached to skull. Occipital portion of skull 1 cm. thick, frontal ½ cm. thick. Weight of brain, 1,270 grams; length, 19½ cm.; width, 15½ cm.; thickness, 8 cm.; tissue of a gray color, no punctata vasculosa evident. Cerebullum, width from side to side 10½ cm.; from before backward, 5½ cm.; most of the substance of the cerebellum is formed by the arbor vitæ, the central white matter being small in quantity. Abdominal walls 1½ cm. thick; they contain a small amount of fat; intestines filled with gas; color, dark gray. A tumor as large as an orange found in the epigastric region attached to the sheath of the aorta and the branches of the cœliac axis. The pyloric end of the stomach, the duodenum, and the head of the pancreas are attached to the tumor. Pericardial sac contains 90 c. c. of cherry-colored fluid. Heart pale, flabby, grayish color; weight, 230 grams; base to apex 10 cm., diameter at base 9 cm. Left ventricle empty, valves normal, wall 1 mm. thick. Right ventricle, valves normal, wall 5 mm. thick. 330 c. c. of chocolate-colored fluid taken from the right pleural cavity. Seventy c. c. of dark chocolate-colored fluid drawn from the left pleural cavity. Right lung bound down posteriorly, weight 350 grams, 31 by 11 by 3½ cm.; tissue soft, crepitant, mottled grayish-black color externally, internally of a darkish grayish color with small white cancerous deposits in apex. Left lung bound down posteriorly and at apex, weight 585 grams, 21 by 13 by 2½ cm., apex much torn in extracting lung, the tissue on section shows a number of small, grayish-white cancerous deposits which are generally disseminated throughout the lung. Spleen, weight 245 grams, 15 by 10 by 2½ cm.; externally, slate color, internally tuscan red. Left kidney, weight 175 grams, 12 by 6 by 3½ cm., surrounded by a great quantity of fat, color grayish white, pelvis filled with fat; the pyramidal portion is difficult to distinguish from the cortical portion; the pyramids are of a white color with a slight pinkish tinge; the cortical substance is 1½ cm. thick between the pyramids in places, and from the base of the pyramids to the periphery of the organ it is 5 mm. thick. The color of the cortical portion is yellowish gray. The right kidney weighs 172 grams, and measures 10 by 7 by 2½ cm., the tissue found to be in the same condition as in the other kidney. The mucous membrane of the stomach is of a pale gray color; it is covered with a dark chocolate viscid fluid. Small intestines filled with a viscid tarry fluid, mucous membranes of a reddish-brown color throughout. The whole intestine was searched for ulceration but nothing was found. The mucous membrane of the duodenum was carefully examined but the ruptured vessel was not discovered. The tissues of the duodenum were hard and indurated and very much changed from their normal condition. No lesions of blood vessels in the lower abdomen. Mesenteric glands enlarged, hard, and on section are found to be of a glistening white color. Liver: weight, 1,320 grams; 36 by 21 by 6 cm.; yellowish color externally, internally deep yellow color; tissue of a soft putty-like consistency.

W. G. S.

SQUAMOUS CARCINOMA.

New growth, malignant.

T. G.; aged 45 years; nativity, Germany; was admitted to the United States Marine Hospital, port of San Francisco, Cal., December 7, 1899, and died May 20, 1900.

History.—Family history negative. Patient stated that six months previously he had had a tumor removed from the lower lip and one from beneath the chin. Secondary deposits afterwards appeared; one on the left side of the face, extending from the lower lobe of the ear to 6 cm. below the angle of the jaw. It was rounded in outline, indurated, adherent to the skin and underlying structures, and painful. A similar mass of smaller size was located over larynx, but apparently did not involve that organ. No further deposits in body could be discovered. Microscopic section of tumor showed it to be carcinoma. Patient otherwise seemed in good health.

December 16.—Patient had a cough, dysphagia, and pain in tumors, also a headache which, he said, antedated the surgical affection.

January 15, 1900.—The tumors had grown to attain the following proportions: The entire submaxillary region was involved on both sides, extending posteriorly to the ear on the left side and downward to the upper border of the clavicle. There was an ulcerated area on the right side near ramus of jaw, and a sinus from which an offensive pus escaped. There were also two ulcerated areas near the chin, under which latter there was fluctuation. Induration presented in all other parts of tumor. Patient had considerable difficulty in swallowing, and articulation was indistinct. The progress of the disease had been comparatively rapid, and now the tumor was of large size.

January 31.—The cancerous mass continued breaking down, and the discharge was very offensive. The features were badly distorted by the growth, the superior maxillary region on the right side being encroached upon, and the whole upper lip was much swollen. Patient complained of pain and had to be confined to liquid diet on account of inability to masticate solid food. The ulcers were kept cleansed antiseptically and dressed with iodoform.

February 24.—One c. c. injections of protonuclein—a solution of 0.3 gram in 4 c. c. of sterile water made into the periphery of the tumor each alternate days. A rise of temperature to 39° C. after a severe chill usually followed the treatment. The discharge from the tumor also increased, and a destructive metamorphosis seemed to have been induced in the immediate vicinity of the injections.

March 15.—The discharge was of a most offensive character, necessitating the removal of the patient to a separate room. The mouth could not be opened more than half an inch, and saliva escaped continually. Articulation was difficult and indistinct, and patient each day complained of pain to the medical attendant. Only morphine subdued it. A zone of redness appeared after each injection in immediate vicinity, and the reaction continued to occur, although less pronounced. The tumor was more irregular in contour, evidently due to the softening and breaking down which had occurred in places.

April 11.—Involvement of the right tempero-maxillary articulation, itself, caused further immobilization of the jaw. The injections were discontinued for a time, as the reaction had become very severe. A fluctuating area on left cheek ruptured, discharging fetid pus. Patient weighed but 135 pounds, being considerably emaciated.

April 25.—Patient was very cachectic, and his appearance revolting. The odor of his room was exceedingly nauseating and intolerable to others, being not unlike that of decaying flesh. The injections resumed were not attended by so much reaction, which was more delayed. Originally they came on usually in about two hours; now they were more tardy and often ill-defined.

May 5.—Patient had required the use of hypnotics and occasional anodynes at night for the past two or three months.

May 10.—There has been considerable vomiting for several days.

May 15.—The tumor had attained an enormous size, involving the entire cervical region, and obstructing the circulation in the great vessels and also the respiration. An aortic regurgitant murmur developed. Patient weak and confined to his bed. Albumen and epithelial and granular casts were present in the urine.

May 20.—Patient got out of bed and fell as he was about to leave the room. He was raised from the floor unconscious by an attendant. When seen shortly afterwards the pulse was very feeble and breathing rapid and shallow. The whole face was of a livid hue. During the preceding forty-eight hours an œdema of the left side of the face had developed, involving and nearly closing the eyelids. The upper lip was enormously swollen and saliva escaped from the mouth. Patient took little notice of his surroundings, but did not seem to be in pain. He died of exhaustion at 3 p. m.

The location of the cancerous growth upon the carotids on admission was a contra-indication to surgical interference. The measures employed then were for the most part expectant or symptomatic. The protonuclein injections seemed for a time to exercise a retarding influence upon the growth and lead to a reduction in its size, apparently by its thermotaxic effect. But the patient suffered from the beginning of the local ulceration, from a bad form of mixed infection, and the absorption of the toxic products thereof seriously damaged his general system, leading up to the cachexia which was a conspicuous feature in the terminal stage of the disease. For the relief of pain and to secure needed rest, morphia had to be administered nightly for the last three months with considerable regularity. Magendie's solution was usually given, and in 8-minim doses. Antiseptic applications were used locally and the mouth kept disinfected to the limited extent possible with listerine. As deodorizers externally, acid carbolic, 2 per cent; euphormol, 10 per cent; lysol, 10 per cent; and iodoform and other powders were used, but all to little avail. Strychnine sulphate and whisky were employed as stimulants and sulphonal as a hypnotic in 1-gram doses given at supper time in warm draft. The accompanying photograph was taken two months before the fatal issue, but immediately prior to that time the tumor presented much greater prominence and was very uneven on the surface.

The temperature chart presented no feature of importance other than that above mentioned.

Necropsy (*twenty hours after death*).—Body that of white adult male, well developed, but much emaciated. Abdomen deeply retracted; chest prominent, making a striking unevenness in anterior surface of body. Post mortem staining slight over pendent portions of body, and also about clavicles. Post-mortem rigidity present. Finger nails grown out to an extreme degree, completely covering the finger tips. An enormous tumor occupies the right submaxillary region and entire left side of face and neck. It is hard and nodular. There is a large sinus opening on right side of chin from which offensive pus escaped. The upper lip was three times its natural thickness; the left eye was closed by an œdematous swelling, which also occupied the left cheek. Trunk: Median incision shows entire absence of subcutaneous fat over entire surface of body. Pleuritic adhesions present over half of left lung posteriorly. Heart: The pericardium contains 100 c. c. of straw-colored serum; the aortic valve shows slight incompetency, failing to support a column of water. The coronary arteries, aortic and mitral valves, and all the large vessels show atheroma. The incompetency at aortic orifice is due to a calcarous deposition on the central segment of the valve, causing its deformity. The musculi pectinati and wall of left ventricle are much hypertrophied. The heart weighs 365 grams. Lungs: The left weighs 540 grams and the right 550 grams. Conspicuous absence of pigment in the left. Bases of both are congested. The right lung tears on removal from adhesions to chest wall. The middle and lower lobes are adherent to one another. The lungs are crepitant throughout. Kidneys: The right weighs 170 grams; the left 185 grams. Both organs show marked parenchymatous change; the cortical portions are streaked with fat. Capsules are nonadherent. Spleen weighs 155 grams and is small and dark. Liver weighs 1,440 grams; surface slightly mottled; no nodules present. Gall bladder filled with dark fluid bile; duct patulous. Pancreas weighs 90 grams and is normal. Intestines normal. The appendix is 4 inches long and patulous throughout. The pelvic peritoneum presents prominent vessels over surface and is of a dusky hue. The same condition prevails throughout the whole abdominal cavity. The bladder contains 20 c. c. of albuminous urine. The walls are thick; organ contracted and cavity very small. The brain weighs 1,515 grams, shows a marked increase in the cerebro-spinal fluid, and the lateral ventricles are greatly dilated by an excessive amount of fluid. Brain otherwise normal.

Microscopic report.—The tumor shows well-defined masses of large epithelial cells arranged concentrically in nests and surrounded by bands of firm fibrous tissue. The cells themselves are large and flat, and resemble in all respects the stratified, squamous epithelium of the skin. The liver presents areas of metastasis scattered among the normal structure. The former consists of masses of small epithelial cells embedded in meshes of a loose reticula of fibrous tissue. These areas are fairly well defined from the surrounding liver structure, which is perfectly normal. In the kidneys the epithelium is entirely destroyed in many places, and having disappeared leaves only the supporting fibrous meshwork. Where it is still present the cells are much degenerated and refractive, their nuclei have disappeared, and fatty change is plainly apparent.

The blood vessels are slightly engorged—acute parenchymatous nephritis.

F. J. T.
J. M. G.

SCIRRHOUS CARCINOMA OF STOMACH.

C. L.; aged 39; nativity, Norway; admitted to the United States Marine Hospital, New Orleans, La., January 6, 1900; died April 30, 1900.

History.—Patient says he has always had good health until a year ago. He was then treated for three months in the United States marine ward of St. Mary's Infirmary at Galveston, Tex. During that time he suffered from anorexia, pain in epigastrium after eating, nausea, and vomiting, the vomited matter occasionally containing blood. Feeling much improved, he left the hospital, but in a couple of weeks returned, this time staying three weeks in the wards. At the expiration of this time he shipped on an ocean steamer. He was out at sea six months, and during this time he was in good health. He was able to do hard work and to eat and digest ordinary food. Only occasionally, he says, did he have any pain after eating. His old trouble returned, and a month later he entered this hospital, having grown rapidly worse. On admission he presented the following symptoms: Great weakness, complete anorexia, constant nausea, vomiting of food or drink soon after taking, obstinate constipation, a constant burning pain in epigastrium, worse after eating, and insomnia dependent on this pain.

Physical examination.—Patient is small in stature and shows emaciation; the skin is muddy in color; the mucous membranes show anæmia; the tongue is pale and anæmic looking; the finger ends clubbed, as is usual in chronic wasting diseases; the ribs are marked; the abdomen is flat, and a well-marked pulsation is visible in the epigastrium; tenderness is elicited by pressure over the pylorus. The abdominal walls are very rigid, but a tumor is vaguely felt in the median line about 1½ inches below the ensiform cartilage. This tumor is apparently about 2 inches in diameter. It is strongly pulsating. This pulsation is thought to be transmitted, because it is not expansile in all directions, and when patient assumed the genu-pectoral position the pulsation became very faint. No bruit could be heard in front or behind. For these reasons aneurism of the aorta and new growths of its wall were set aside and the diagnosis of malignant disease of the stomach was made. The patient grew steadily worse in spite of treatment. On March 15 large hemorrhoids appeared, which persisted until death. On April 10 a test breakfast was given. An hour later it was carefully withdrawn by a soft-rubber stomach tube. The motile power of the stomach was deficient, and the contents were expelled with difficulty. Chemical examination of these contents revealed a complete absence of hydrochloric acid. Microscopic examination showed a few red blood cells, numerous pus cells, but no epithelial tissue or the bacillus geniculatus, which is said to be pathognomonic of malignant disease of the stomach. A few days later the obstinate constipation gave way to a colliquative diarrhea, which was only partially held in check by large doses of opium. He became delirious on the 27th, and died at 2 p. m. April 30, 1900.

Necropsy (*two hours later*).—Body of a white male, apparently aged about 50; stature small, much emaciated; color pale, skin muddy; rigor mortis of extremities. On incision the muscular wall was found to be very thin and all the tissues were bloodless; omental adhesions to the anterior abdominal wall from the liver above to the right iliac fossa below. A new growth irregular in outline noticed in median line, partly covered by left lobe of liver; stomach and intestines contracted and empty. Difficulty was experienced in removal of the sternum, because of the partial ossification of all the costal cartilages. The heart was small and contracted; weight of heart 270 grams. Dense adhesions over apex of right lung; also adherent to the pleuræ over its entire external, posterior, and inferior surfaces. A few old adhesions at the apex of the left lung. Stomach, together with tumor, was removed with difficulty; very strong adhesions to lower surface of right lobe of liver, separation of which caused a tear of the adherent stomach wall. The growth was adherent below to the head of the pancreas. It was also adherent to the aorta and cœliac axis, which accounts for its marked pulsation. On opening the stomach the cancer was found to be situated at its antero-inferior surface; at the pyloric end of the stomach it extended to within a half inch of the pylorus, but did not involve it. The growth was rounded in outline and about 4 inches in diameter; the base was covered by sloughing necrotic material; the edges of the ulcer are heaped up and greatly thickened; outside of this the stomach wall is free from growth, but seems thin and atrophic. The weight of stomach, with tumor, was 395 grams. The liver was adherent above; weight 1,150 grams and a little cirrhotic. The gall bladder was partially filled with inspissated bile; spleen was also a little cirrhotic, weight 152 grams. Kidneys normal; weight of right kidney 132 grams. The mesenteric glands were enlarged. The large amount of dense fibrous tissue about the cancer no doubt accounted for the freedom from growth of the rest of the stomach, the absence of secondary growths, and for the long period in which the growth seems to have been quiescent and nature had attempted a self-cure by throwing a wall of dense fibrous tissue about it.

T. D. B.
R. H. von E.
A. H. G.

CARCINOMA OF THE LIVER.

Scirrhus; perforating ulcer of the stomach.

J. W.; age, 31; nativity, Germany; admitted to the United States Marine Hospital, Chicago, Ill., January 19; died January 26, 1900.

History.—Patient had been drinking heavily for several weeks and complained of severe pain in the back.

Physical examination.—Patient very much emaciated; skin slightly yellow; conjunctivæ tinged slightly with yellow; chest negative; spleen enlarged; large nodular liver extending below the umbilicus to within 2 inches of the crest of the ilium.

January 22.—Patient vomited several times this morning between 6 and 9 a. m. Diarrhea continues; stools like tar in appearance; abdomen distended with fluid; pain present in the region of the liver.

January 23.—Abdomen aspirated, and about 500 c. c. of amber-colored fluid removed, followed by relief from the pain.

January 25.—Vomiting continues; complains of pain over the abdomen; some tenderness on pressure; passed a restless night; slept very little.

January 26.—Temperature, which heretofore has been normal, is now 38° C. Patient failing rapidly. Death at 9.20 a. m.

Necropsy (five hours after death).—Body very much emaciated; post-mortem rigidity and lividity present. The heart after opening weighed 350 grams; appearance normal. Weight of left lung, 300 grams; right, 480 grams, both normal in appearance. Liver: Weight, 5,427 grams; extends below the umbilicus to within 2 inches of the right iliac crest, and the left lobe entirely obscures the stomach; surface covered with hard, white nodules; gall bladder very small. On section the entire organ was found to be involved by the carcinomatous nodules. The stomach was of the average size. On its posterior surface a perforating ulcer was found, funnel shaped; internal diameter, 1½ inches; external diameter, 1 inch. The substance of the stomach immediately surrounding the ulcer for a distance of nearly 2 inches was markedly indurated and somewhat thickened. The spleen weighed 420 grams, the tissue firm. The pancreas weighed 70 grams, the right kidney 220 grams, the left 210 grams, and were normal in appearance. The intestines, great nerve trunks, and blood vessels also appeared to be normal.

M. K. G.
H. W. S.

CHRONIC CIRRHOSIS OF LIVER.

J. A.; age, 50; native of Ireland; admitted to the United States Marine Hospital, Evansville, Ind., July 2, 1898; died August 9, 1899.

Previous history.—Patient had been discharged from the Navy on account of having liver trouble. Has had several acute exacerbations of the disease previous to entering the hospital. Patient had been a hard drinker.

Clinical history.—On admission he complained of pain in abdomen. Abdomen was enlarged and tympanitic. He had been passing blood by intestines and had been vomiting blood also. The liver area was enlarged. Case was diagnosed as hypertrophic cirrhosis of the liver. Later it was determined that he had the atrophic form. The liver area grew smaller. He had profuse discharge of blood from the bowels and stomach. Colic pains aggravated him all the time and required morphine for relief. All kinds of diet were tried. Potassium iodide was given for a long time. Various drugs were given to relieve the immediate symptoms. He had to be tapped eight times during the last two months.

Necropsy (*16 hours after death*).—Pupils dilated; rigor mortis marked; body poorly nourished; tissues œdematous. Brain and meninges normal; brain weight, 1,435 grams. Heart normal; weight, 330 grams. Lungs normal; slight amount of congestion; weight of right lung, 1,025 grams; left lung weight, 920 grams. Abdominal cavity contained considerable amount of fluid. Liver, weight, 1,630 grams; small; tough; presented hobnailed appearance on external surface. Three small bile stones were found in the substance of the liver. Spleen was enlarged and tough. It weighed 940 grams. Right kidney, 175 grams, normal; left kidney, 170 grams, normal. Peritoneal covering of intestines was thickened; other organs and tissues normal.

J. H. O.

INFLAMMATION OF LIVER, CHRONIC.

Hobnail liver; Anasarca.

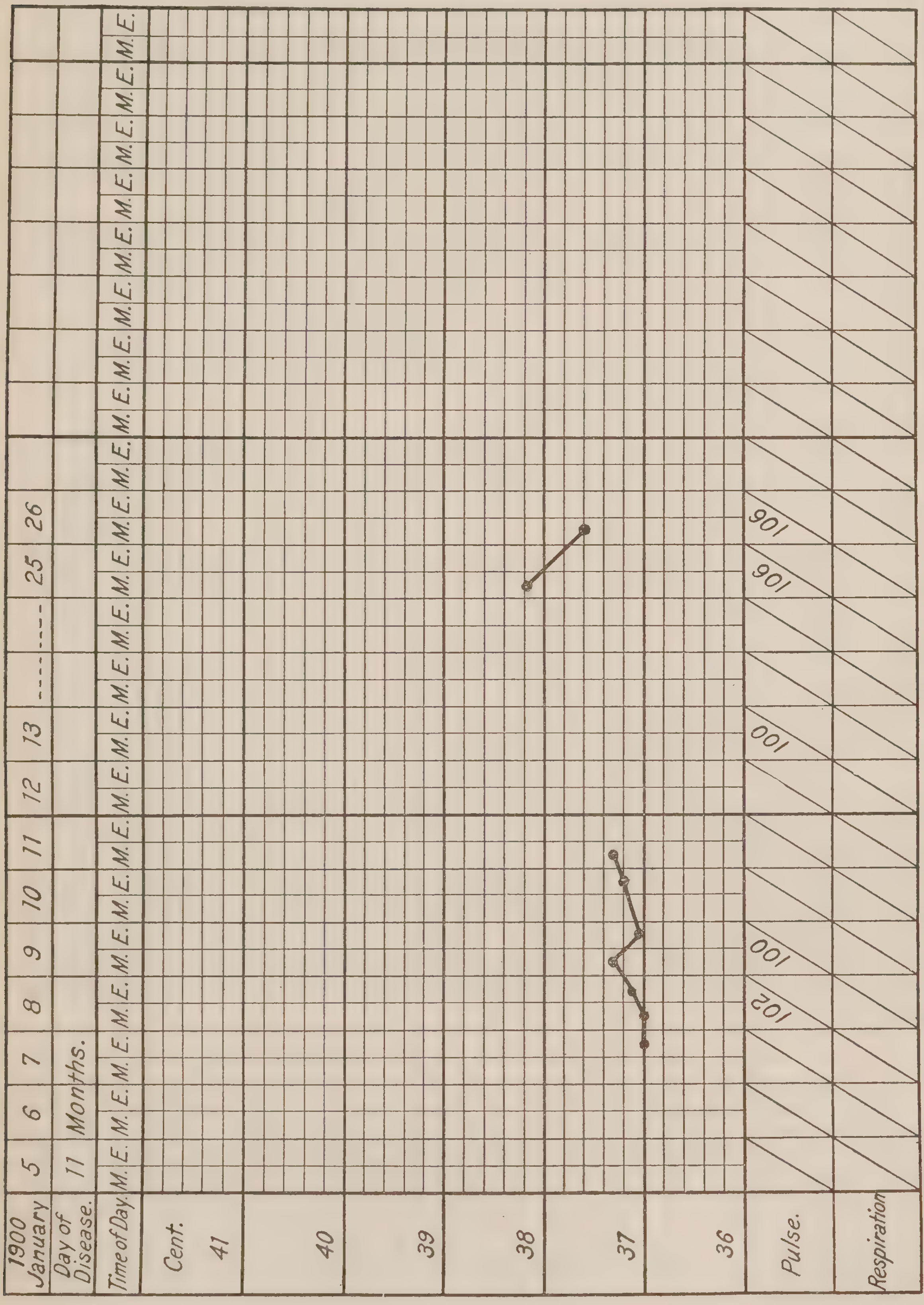
A. S.; age 50 years; nativity, Finland; was admitted to the United States Marine Hospital, port of San Francisco, Cal., January 5, and died January 28, 1900.

History.—The patient stated that his mother died of apoplexy. Otherwise his family history was negative. He denied all venereal history and said he had never suffered any serious disease before his present trouble began. He had been suffering about eleven months prior to coming to this hospital, and his initial symptoms were apparently only loss of appetite and diarrhea, soon followed by swelling around the ankles. The diarrhea continued and he later developed some abdominal dropsy, with swelling of the legs, and grew gradually weaker. Examination showed the patient to be of a pale, muddy complexion; the face and arms in a state of very poor nutrition; the abdomen distended, containing fluid, and its walls œdematous; the feet, legs, and especially the sorotum, markedly œdematous. The hepatic dull area was apparently diminished, but of this it was hard to be certain on account of the distention of the abdomen. The heart sounds were clear, without any murmur. The skin was pale and dry. Throughout his stay in hospital the patient suffered periodically from retention of urine, and had occasionally to be catheterized. The amount of urine passed in twenty-four hours was considerably less than normal, and it frequently, but not constantly, contained a small amount of albumen, and occasionally some granular casts. On January 13 the patient first suffered from incontinence of feces, a symptom which remained with him until his death. On January 14 he had two attacks of convulsions, beginning with clonic spasms and ending with rigidity and cessation of respiration. He rallied from both of them, however, after artificial respiration and free hypodermic stimulation. Soon after this rales became audible all over the chest, and at the base of each lung posteriorly an area of percussion dullness developed. The patient grew steadily weaker, and toward the end could not even sit up in bed without assistance. He died quietly at 3 a. m. January 28, 1900.

Treatment consisted in free purgation, the use of diuretics (as Basham's mixture and spirits of nitrous ether), pilocarpine, and physical means to induce free perspiration, with milk diet, and toward the end, as the patient began to grow weak, the administration of strychnine and whisky.

Necropsy (*twelve hours after death*).—The body is that of a well-developed, anæmic, adult white male. Post-mortem staining in dependent portions of the body is marked. On opening the abdomen the subcutaneous tissues are found œdematous. The abdomen is filled to distention, containing 1,500 c. c. of clear, serous fluid. The omentum is shrunken and its fat absorbed. The diaphragm is pushed up to the level of the fifth rid. The pleural cavities both contain a large amount of serous fluid. There are no adhesions on either side. The right costal pleura contains a few tubercles. The left lung weighs 355 grams, is light in color and crepitant, except for a small portion at the base, where there is œdema. There are a few small tubercles scattered in its substance. The right lung weighs 387 grams, is light in color, and shows no œdema. The pericardium contains fluid in excess, but has no adhesions.

The heart weighs 210 grams, is small and fatty. Its valves are all normal. The aorta shows some atheroma. The spleen weighs 55 grams, is small and pale. The left kidney weighs 125 grams and has no peri-renal fat. Its capsule is adherent. Section shows the kidney to be in a state of extensive cystic degeneration; the largest cyst being about the size of a walnut, with calcareous walls, containing a gelatinoid substance. The right kidney weighs 175 grams and is normal. Its peri-renal fat is absorbed. The liver weighs 1,635 grams. It is adherent to the diaphragm. It has a pale, mottled surface and shows a mild degree of cirrhosis. The gall bladder is full of bile.



[United States Marine Hospital, port of San Francisco, Cal. Name, A. S.; age, 50; disease, inflammation of liver, chronic. Hobnail liver; Anasarca.]

W. M. W.
F. J. T.
J. M. G.

TUBERCLE OF LUNGS.

J. R. C.; aged 22 years; nativity, Balearic Isles; arrived at the Brunswick quarantine June 23, 1900; died there June 24, 3 a. m., and the body was received on board the vessel, remanded from that station at the South Atlantic Quarantine station June 25 a. m.''

History, as received from the medical officer in charge of the Brunswick quarantine, is "I have remanded to your station the Spanish ship *Palamos*, 61 days from Barcelona, Spain. This vessel arrived at this station yesterday evening at 6 p. m. with one man in a dying condition, having been sick about forty-eight hours; physical signs as follows: Pulse, 140; temperament, 39; respiration, 35 per minute; dyspnœa, dullness over lower lobe of left lung, mucous and sibilant rales on auscultation, cough with mucous and frothy expectoration. He complained of pain in his left hypochondriac region, extending as far as fifth rib. The patient died this morning at 3 a. m.

The vessel's history is a good one; she left Brunswick for Barcelona direct, discharged cargo, and returned with clean sand ballast for Brunswick direct, and a close questioning of master and crew separately elicits no sickness during the 61 days out, save colds and the present case. In Barcelona, eight of the old crew were discharged and eight men shipped. Among them was the present case, about whose antecedents it can only be learned that he came from the Balearic Isles. All hands unite in saying that he had a cough when he shipped, several saying he looked like a consumptive, that the trip was a very hard, wet one, and that he grew worse after a severe exposure, but reported as before described.

Necropsy (*about thirty-three hours after reported time of death*).—The body is that of a man about 165 to 170 cm. in height; weight 50 kilograms; body slight; abdomen distended. There are no signs of any eruption nor discoloration on the skin. No enlarged lymphatic glands can be felt in the post-auricular, cervical axillary, epitrochlear, inguinal, nor femoral regions. Upon incision the abdominal wall is found moderately thin, but with some little fat. The intestines are distended, as is the stomach, only normal contents noted; the bladder normal, containing about 25 cc. of urine. The liver is small, pale in color, and presents evidence of chronic degeneration; weight about 1,500 grams. Gall bladder about empty. The spleen was rather below normal in size and the notches were very marked. It was of rather a paler slate color than is usually seen, save the upper extremity, in which post-mortem change had apparently begun. No abnormality in either kidney nor supra-renal capsule noticed. No enlarged lymphatic glands found in the abdominal cavity after a careful search. Upon opening the thoracic cavity both lungs were found firmly adherent to the chest wall and diaphragm posteriorly and inferiorly, and the left lung was adherent throughout, the adhesions being old organized ones. A large cavity was found in the left lung, which contained pus and blood. Both lungs were so friable that it was found impossible to take them out of the cavity. In the rest of the lower lobe of the left lung consolidation (tubercle) was found, while the upper lobe in its lower portion was in the beginning stage of hepatization. The apex showed tubercles. The right lung was not adherent in front; there was no serum, bloody or otherwise, found in the pleural cavity; its lower lobe was in a state of congestion, there being much bloody, frothy exudation upon pressure. Both lungs were so friable it was impracticable to get a satisfactory specimen. The skull was not opened.

H. S. C.

F. A. (negro); aged 22; admitted to Mercy Hospital, Pittsburg, Pa., September 6, 1899; died October 6, 1899.

The patient was sent to the hospital in the ambulance. He complained of a severe cough, which he had had all spring and summer. The cough was worse in the morning on first waking, when he would expectorate profusely. He also gave a history of several hemorrhages, of night sweats, and of recent loss of weight. Physical examination disclosed the signs of advanced tubercle of lung, anæmia, emaciation, clubbed fingers, and very rapid respiration. On percussion there was marked dullness over the right side of the chest below the clavicle. Tactile fremitus here was exaggerated. Auscultation revealed bronchial breathing over the upper part of the right lung, with numerous râles. The tubercle bacilli were found. The patient's chief treatment was that with strychnine and creosote, the dose of the latter drug being increased a drop daily. He continued to lose weight and to become weaker and weaker; was confined to his bed the last ten days. Finally he died from exhaustion on the morning of October 6, 1899, at 8 o'clock.

Necropsy.—Body greatly emaciated. Rigor mortis present. Incision from the chin to the symphysis pubis shows very little subcutaneous fat. Thorax: It is with difficulty that the thoracic cavity is entered because of the adhesion of the pleuras, chiefly on the right side. There is but little fluid in the cavity. On opening the pericardium, about 25 cc. of a straw-colored fluid is found. The heart is pale and contracted. The right auricle and ventricle contain 50 cc. of blood. The left are empty. The valves are apparently normal. Weight of heart, 250 grams. The right lung is strongly adherent to the chest wall. It is of a slatish-gray color and seems to be somewhat collapsed about the apex. Incision into the apex shows it to be in a state of consolidation. Numerous tubercles can be seen. In the middle lobe a small cavity is seen, partly filled with broken down necrotic tissue. The lower lobe of the right lung is infiltrated with tubercles. There are a few also in the left lung. Both lungs are blackened, and in places contain nodules of carboniferous material which have become encysted. The right lung weighs 615 grams and the left 580 grams. Abdomen: On section, the liver is seen to be somewhat congested. No tubercles can be found. The weight is 1,600 grams. The capsules are easily removed from the kidneys. The right weighs 150, the left 154 grams. The bladder is almost empty. The spleen is, to all appearances, normal. The stomach and intestines present nothing worthy of note.

R. C. C.

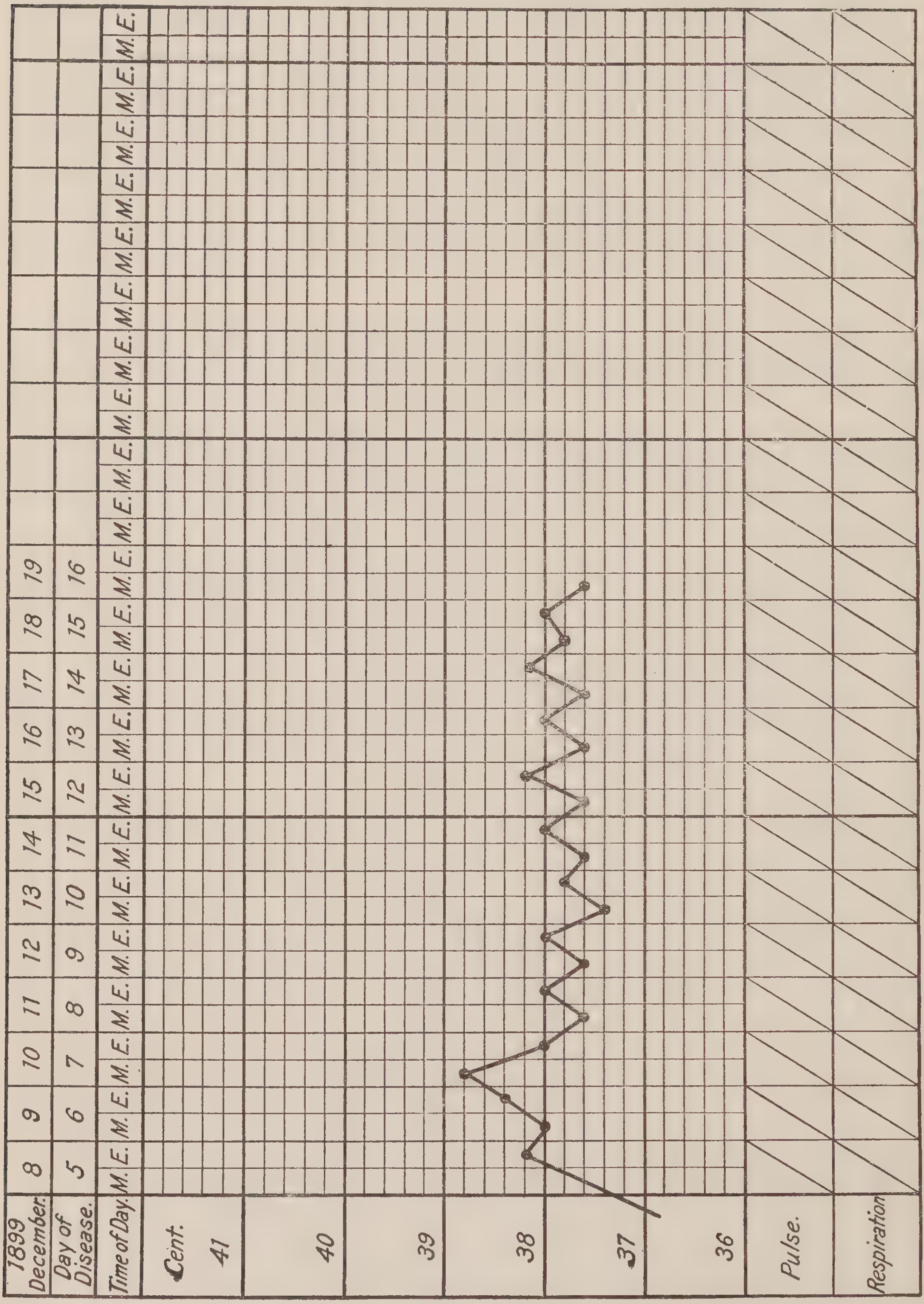
J. B.; aged 26; nativity, Cape de Verde Islands; was admitted to the United States Marine Hospital, port of San Francisco, Cal., December 7, 1899, and died January 11, 1900.

History.—Patient said he caught a bad cold four days previous to admission and coughed a good deal, but had no pain, and raised considerable sputum. Two days previously he raised some blood in a bad fit of coughing, and vomited. Has been losing weight during the last three weeks. Appetite poor. Some night sweats, but slept well.

Physical examination.—Inspection: Patient well developed and fairly well nourished. Both sides of chest moved equally. Palpation: Vocal fremitus slightly decreased near apex on left side; apex beat felt near the fifth interspace, about 2 cm. to right of median line. Percussion: Slight dullness on and above left clavicle and in the left supra-scapular fossa. Area of liver and splenic dullness normal. Auscultation: First sound at apex not clear; second sound is accentuated. Vocal resonance is decreased above and just below left clavicle. No râles heard. On December 9 a moderate hæmorrhage began, which gradually decreased until December 15, when it ceased. The treatment was supportive and symptomatic, fluid extract of ergot and gallic acid being used to control the hæmorrhages. He slowly grew weaker until 7.30 a. m. January 11, 1900, when he died.

Necropsy (*four hours after death*).—The body is that of a fairly well developed and nourished adult mulatto male. Panniculus adiposus moderate, lividity absent, rigor mortis begun. Intestines are moderately distended with gas. Great omentum well developed, and contains a moderate amount of fat. Omental glands are not enlarged. Mesenteric and retro-peritoneal glands are uniformly enlarged. Bladder slightly distended. Anterior mediastinum normal. The parietal and visceral layers of the pericardium are normal. The heart is apparently enlarged, and has stopped in diastole; it shows marked signs of fatty change. The right heart is filled with clot and fluid blood. The left auricle contains a post-mortem clot, and the left ventricle is filled with semifluid blood, also white and red clot. The wall of the left ventricle is thickened and slightly paler than normal. Aortic valves normal. The segments of the mitral valve show signs of sclerosis, and at the end of the large segment is an area of calcareous change which is well marked. The pulmonary and tricuspid valves are normal. The heart weighs 348 grams. The left lung weighs 1,152 grams; it is adherent posteriorly to the chest wall by strong fibrous bands. The bronchial glands are enlarged and caseous. The visceral layer of the pleura is smooth and glistening, through which can be felt a general infiltration of the lung with nodules. On section the lung in its entirety is honeycombed with innumerable small cavities, between which is a general tubercular infiltration and large amount of caseous substance. The cavities are filled with a thick yellow pus. Mucous membrane of the bronchial tubes thickened and hyperæmic, on which is a thick, viscid, mucous exudate. The right lung weighs 905 grams, and is in a similar condition, but to a less extent; both present the signs of a comparatively rapid process. The spleen weighs 160 grams; its capsule is smooth and glistening. On cut section its surface presents a mottled appearance; its substance is soft and paler than normal. The left kidney weighs 155 grams, and is well embedded in fat; its capsule strips easily, leaving a pale, smooth surface which is marked by slight injections of a few of the capillaries. Its cut surface is paler than normal and shows no signs of tubercle.

The right kidney weighs 165 grams; its capsule does not strip so easily, and in some places a small amount of kidney substance is removed with it; otherwise it presents the same conditions as the left. The liver weighs 1,620 grams. Its capsule is smooth and glistening. Its cut surface shows a few small areas of a fatty infiltration; otherwise it is normal. The gall bladder is moderately distended with bile. The pancreas are normal. The gastro-intestinal tract shows no signs of tubercle and is apparently normal. The genito-urinary tract is normal. The brain weighs 1,240 grams and is normal.



[United States Marine Hospital, port of San Francisco, Cal. Name, J. B.; age, 26; disease, tubercle.]

M. E. S.
J. M. G.

Kidneys, spleen, etc.

C. V. (negro); aged, 19 years; nativity, West Indies; admitted to the United States Marine Hospital at Baltimore, Md., November 20, 1899; died December 11, 1899.

History.—Patient thinks that his father died from consumption. Last spring he was troubled with a slight cough accompanied with some expectoration, followed later by profuse expectoration of thick, yellowish sputum.

Physical examination.—On admission was greatly emaciated; the clavicles and ribs stand out prominently; depressions of the intercostal spaces and supra and infra clavicular regions are very noticeable. There is slight dyspnœa; facies anxious; eyes bright and sunken. Cough is present, with expectoration of mucopurulent material. Percussion gives dullness over the apex of the left lung and a cracked-pot sound in the region of the apex of the right lung, which, with pectoriloquy and other general symptoms of chills and sweats, indicate the presence of a cavity. Bronchial breathing is distinct over the anterior chest wall. There are moist bubbling râles and coarse crepitant râles over the middle and inferior lobes of the right lung; rough pleuritic sounds are heard on both sides of the chest. The temperature rises to 39° C. and 40° C. in the early evening, and night sweats are severe. His pulse is weak and rapid. Microscopical examination detected tubercle bacilli in the sputum. Respiration became more rapid, fever and night sweats persisted, and exhaustion was rapidly succeeded by death.

Necropsy (*nine hours after death*).—Rigor mortis slight; general nourishment very bad. The heart weighs 315 grams; valves competent; walls soft and flabby. The right lung was torn while being removed, and part of the adherent pleura was torn away and removed with the lung; weight of right lung, 455 grams. The apex of the right lung contained a cavity filled with broken-down tubercles, and the lung was filled throughout with miliary tubercles. The left lung weighs 905 grams, was difficult to remove on account of numerous adhesions, and was filled with tubercles. The liver weighs 1,900 grams and was congested. Gall bladder full. The pancreas weighs 25 grams. The left kidney was enlarged; somewhat congested, lobulated, and contained tubercles scattered through the cortex. The right kidney weighs 260 grams; is somewhat congested; contains tubercles scattered through the cortex; its pelvis contained several small cysts. The spleen weighs 470 grams and contains tubercle here and there. The membranes of the brain were œdematous. Between the dura mater and pia mater was a collection of about 50 c. c. of thin, straw-colored fluid. The brain weighs 1,260 grams.

T. B. P.
G. P.

P. J.; aged 60 years; nativity, Norway; admitted to the Sanitary Ranch at Fort Stanton, N. Mex., December 29, 1899; died June 4, 1900.

History.—(This is taken from clinical notes furnished from the medical officer in command at Galveston, Tex.) Family history negative. Has been sick for about twenty years suffering from shortness of breath. Has had a cough for fifteen years, being much worse in winter. Has gradually lost weight for the last twelve years and at present weighs about 127 pounds. On inspection, is found that the clavicular fossæ are depressed, with diminished expansion on both sides in upper two-thirds of chest. Chest much flattened and lower margin not drawn in on deep inspiration. Percussion shows dullness at both apices and extends down to third interspace. Dullness slightly more on left side. Vocal fremitus increased over upper third of both lungs. Mucus râles heard on deep inspiration over both apices and slightly in infraclavicular fossæ. Harsh breathing extending down from clavicle to base, which is hard over right lung near sternum.—C. T. P.

The condition of the patient when admitted was noted as follows: Aged 60; nativity, Norway; light complexion; blue eyes; 5 feet 9 inches in height; weighs 127 pounds; admitted to the sanitarium December 29, 1899. (For previous history see clinical notes from Galveston.)

Present condition.—Eyes are bright and skin good color. The skin of chest is wrinkled, showing premature aging. Is short-winded and has been so for years. Body fairly well nourished. Heart is fairly strong, and there seems to be very little atheroma. Left lung has large deposit at apex and extensive foci throughout the lower lobe. Behind, between the scapula and spine, there is an extensive deposit and considerable pleurisy. There is tubercular breathing and mucus râles throughout. The right lung is worse than the left, there being a more compact deposit at the apex, which is quite flat on percussion. There is no vesicular breathing in this portion of the lung. There are extensive foci throughout the other portions of the lung. Behind, between the scapula and spine, there is a large solid deposit, with adhesions.

The patient has heaving breathing, lifting the chest with the diaphragm. Expectorates only a moderate quantity of sputum. Has dry cough, which gives him considerable trouble at night. Sleeps fairly well. Appetite fair. Bowels regular. After the patient had been here a few days the peculiar bronzing of the skin was noticed. He claims that this has existed for a long time; and as he got about so much and seemed so well, no further attention was paid to the condition. At the time of the physical examination the discrepancy between the physical signs found here and at Galveston were noticed, but it was thought to be an error in copying. The findings of the post-mortem would seem to show that both examiners were radically wrong in finding extensive deposits in either apex. The necropsy showed that there were a few tubercles throughout both lungs, but none of these had softened, and they were so small that they could not have caused the physical signs which each of the examiners thought he got. The explanation of the signs is that it is probable that there was a marked passive congestion at the sites mentioned and that this gave the physical phenomena noted. The patient got along nicely up to January 23, when the following note was made: Patient has a very enlarged liver, probably cirrhosis. There is some fluid in the abdominal cavity and dropsy of the legs. No albumin was found. The urine was darkened by nitric acid and boiling. After that time the urine was repeatedly examined for casts and albumin, but always with negative results. The only thing found in excess or abnormal was a trace of indican and an increase of urates, which was probably due to small amount of urine passed daily, viz, 750 c. c. After treatment of a week the œdema of the legs had nearly disappeared and he was passing about 1,500 c. c. in twenty-four hours. The patient's sputum could not be examined at the time of his admission, as the stains had been spoiled. By the time the stains were again ready for use he had ceased to expectorate except a very little bit in the mornings. His sputum was repeatedly examined and only once (February 8) was a typical bacillus found.

One of the queer things about this case was the fact that his hæmoglobin never fell below 95 and continued this high to his death. Every care was exercised to exclude error in this examination.

During the month of April the patient grew worse rapidly and was very soon dropsied, the abdomen, legs, and scrotum being enormously enlarged. I tried to examine him May 20, but there was so great a commotion in his chest that the physical signs were very much confused. He continued to grow worse and died from exhaustion.

Necropsy (*twenty-two hours after death*).—The body was enormously swollen and pitted on pressure wherever pressure was made. There were no scars except a good vaccination and the marks left from an old bubo.

Great quantities of fluid escaped from incisions through the skin. The body was water-logged; rigor mortis not well marked; no discolorations. The brain was not examined, because the station is not yet prepared for such an examination.

The thorax was opened, and the pleura on the right side and the pericardium were adherent to the anterior chest wall. In the anterior and middle mediastinum several tubercular glands were found. The right pleura was firmly adherent throughout. The right lung was dissected out and, much to every one's surprise, was only congested and contained here and there tubercles which were hard and firmly encapsulated. The left pleura was free, and the left lung only contained a few tubercles similar to those on the right side. It was considered strange that with the enormous dropsy there should be no fluid in either pleural cavity. The pericardium was firmly adherent to the adjacent pleuræ, chest wall, etc., and contained a small quantity of fluid, which was not sufficient to cause any trouble. The heart was slightly enlarged, and the right ventricle was dilated. There were no thrombi and only a little fluid blood in the ventricles. The mitral was partly destroyed, and one leaflet was buttonholed. One leaflet of the tricuspid had been entirely destroyed, allowing regurgitation. Endoarteritis commenced in the aorta at the mitral and extended, probably, throughout the entire body, or, as was shown by examination of some of the systemic arteries, the endothelium of the thoracic aorta was destroyed and the internal coat of the aorta was covered with small calcareous flakes. The aorta was distended to about 3 inches in diameter from the heart to the descending portion. None of the coats were broken, and the condition was a true aneurism. The innominate, carotids, and left coronaries were dilated, and the internal coat contained deposits of lime in small flakes. The middle mediastinum contained several large tubercular glands.

The spleen was small, and friable and the tissue was very dark. The capsule was thickened and shiny. The right kidney was contracted, and there were four small cysts just under the capsule. The capsule was not adherent. On section the tissue cut hard. The cortical substance was badly damaged by scar tissue, which ran through it in streaks. Only two normal medullary pyramids could be found. Where the pyramids should have been was filled in with connective tissue. The left kidney was similar to the right, except that there were no cysts. The right suprarenal capsule was thickened and cut very hard. The left was lost in getting out the kidney. The stomach was congested. The gall ducts were nearly occluded. The gall bladder was very small and contained a small amount of thin, yellowish fluid. The communications between the bladder and the common ducts were nearly obliterated. The liver was slightly enlarged. The liver capsule was thickened, firmly adherent to the liver substance. Running across the right lobe, horizontally, was a thickened band, which on section was found to extend down into the liver substance. This band caused a ridge to form here. The liver cut hard in several places and looked to be syphilitic. Near where Glisson's capsule enters with the blood vessels much of the liver substance had been replaced with connective tissue. This extended into different portions, and often a set of vessels had been destroyed and the canal filled in with scar tissue which could be traced in its ramifications. The head of the pancreas was hardened and firmly fixed to the duodenum. It was very difficult to dissect it out. It cut very hard on section. The vessels of the mesentery were engorged and the mesentery was water-logged.

The appendix contained two spicules of fish bones and a hard fecal concretion. The omentum, urinary bladder, organs of generation, rectum, duodenum, small intestines, and large intestines were normal.

J. O. C.

H. B.; aged 56 years; nativity, Germany; admitted to the United States Marine Hospital, port of San Francisco, Cal., February 22, 1899, and died January 22, 1900.

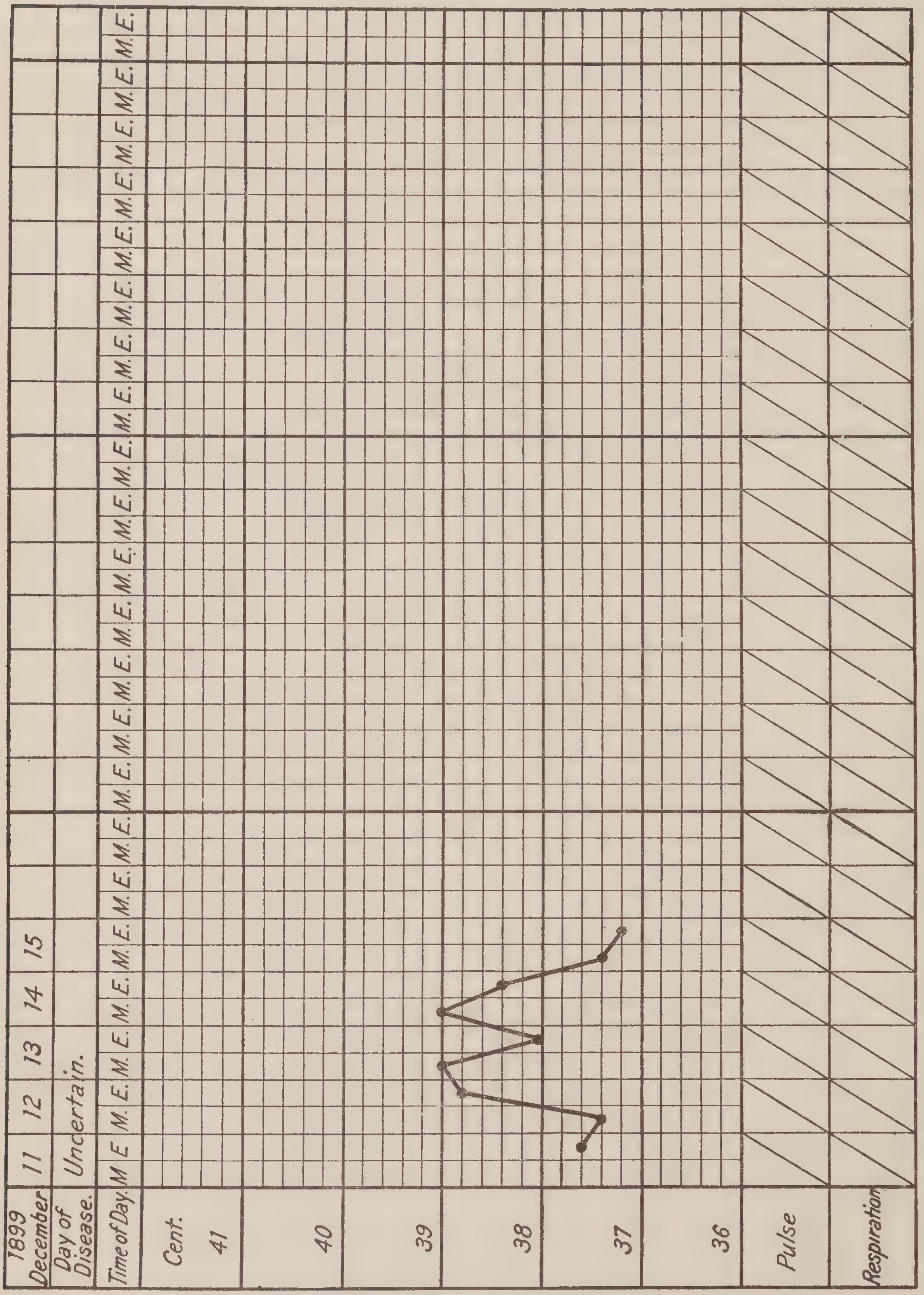
History.—When admitted he denied all previous illness, but complained of a bad cough which he had contracted about six months previously. Since then he has been losing in weight and strength, and suffers from insomnia, due to a distressing and persistent cough, accompanied with an abundant amount of expectoration loaded with tubercle bacilli; he also complained of night sweats and anorexia. Examination showed the patient to be fairly well developed, but poorly nourished. Inspection showed no expansion on the right side of the chest. Dullness of right apex extending to the second rib; hyper-resonance on the left side. Rales of all kinds were heard over the right thorax. On April 8, 1899, examination by the Roentgen ray showed that the apex of the right lung cast a darker shadow than that of the left. Below this shadow on the right side were two light areas each about 4 centimeters in circumference; no shadows were seen in the left lung. On January 2, 1900, patient became so weak he was confined to bed until January 22, 1900, when he died at 6 p. m. from exhaustion. The treatment consisted of stimulants and tonics with an abundance of milk and eggs, codeine being used in small and repeated doses to control the cough. His temperature chart presents no feature of interest.

Necropsy (*eighteen hours after death*).—The body is that of a poorly developed and poorly nourished white male. Rigor mortis and post-mortem lividity well marked. The mediastinal glands are enlarged and pigmented. Pleuritic adhesions on the right side; adhesions limited to the apex on the left side. The pericardium contains 60 c. c. of a straw-colored fluid. The anterior free border of the heart presents a gelatinous deposit. The large vessels at the base of the heart are filled with white firm fibrous and gelatinous dark clot. The heart weighs 345 grams. The left ventricle contains a mixed clot. On one of the segments of the aortic valve is seen a large deposit of calcareous matter. The aorta presents an alligator-hide appearance. There is some thickening of the tricuspid valve. The coronary arteries are prominent and tortuous. The left lung weighs 950 grams. The upper two-thirds of the lung is solidified, and it is crepitant at the base. Its inner margin is emphysematous. Find a foreign fibrous deposit at the apex. The whole lung is much pigmented. On section the lung presents a degenerated appearance, with a large cavity at the apex filled with a purulent material; also cavities throughout the upper lobe; pus escapes from a large bronchi. The right lung is so extensively degenerated and adherent that removal is impossible. Cut section shows the lung to be broken down and excavated. Miliary tubercles are scattered throughout the mesentery and omentum. The spleen weighs 165 grams; it is small, pale, and firm; its capsule strips easily. Left kidney weighs 130 grams; its capsule strips easily. On section the cortical zone is narrow, pale, and is slightly infiltrated with fat. The right kidney weighs 117 grams, is slightly pale in color, and shows a small amount of fatty infiltration on its cut surface. The liver weighs 1,225 grams; it presents a small area of perihepatitis above and posteriorly. It is normal in color and firm and resistant to the touch. The gall bladder is filled with bile and is normal. Pancreas weighs 67 grams and is normal. The stomach is normal. At the end of the jejunum is a round deep ulcer 2 cm. in diameter; also two small, round, circumscribed ulcers in the cæcum. The appendix is free from ulceration. The genito-urinary tract appears normal. The brain is decidedly œdematous. The vessels on its surface are very prominent; a large quantity of serum is seen along the base. It weighs 1,177 grams.

M. E. S.
J. M. G.

E. O.; aged 21 years; nativity, Japan; was admitted to the United States Marine Hospital, port of San Francisco, Cal., December 11, 1899, and died December 25, 1899.

History.—Family history unobtainable. Patient stated that about a year and a half previously he had suffered for two months with "chills and fever." About one month before admission he caught a bad cold and had a slight cough ever since. This grew worse during the last week, and in the four days previous to his admission he had three attacks of hemoptysis. On admission he complained of recent loss of weight and strength, night sweats, anorexia, occasional vomiting in attacks of coughing, pain beneath both nipples increased by coughing and worse on the left than on the right side. Physical examination showed the patient to be very poorly nourished; chest expansion very poor, the right side moving rather more than the left; well-marked signs of consolidation in the upper part of both lungs and of a



[United States Marine Hospital, port of San Francisco, Cal. Name, E. O.; age, 21 years; disease, tubercle.]

cavity below left clavicle; moist râles over both sides of chest; pleuritic friction, both audible and palpable over lower part of left lung. The hepatic and splenic dull areas were normal. The apex beat of the heart was in the fifth interspace about 2 cm. to the right of the left mammary line. There was no cardiac murmur, but the heart sounds were rapid and the aortic second sound accentuated. For a few days after admission patient had occasional slight attacks of hemoptysis. On the third day of his stay in the hospital he complained of diarrhea, which continued, only partially controlled by treatment, till his death, which occurred at 2.30 p. m. December 25, 1899. Treatment consisted in nourishing diet with a mixture of cod-liver oil, maltine, and whisky; fluid extract of ergot and gallic acid to control hemoptysis; camphorated tincture of opium for his diarrhea, and local applications to the chest for the relief of pain.

Necropsy (*twenty hours after death*).—The body is that of a small fairly well-developed, but much emaciated, adult Japanese male. The fat on the abdominal wall is extremely thin. The parietal peritoneum is normal. The omentum is very poorly developed, and the intestines moderately distended with gas. The mesenteric and retro-peritoneal glands are uniformly enlarged. The fat in the anterior mediastinum is poorly developed, and the lymphatic glands are found in general caseation. There are extensive old firm adhesions between pericardium and both lungs. Both lungs are filled with nodular masses. The interior of the pericardium appears normal on both its surfaces and contains 25 c. c. of clear fluid. The heart shows marked evidence of extensive fatty change and is in diastole. The right auricle is filled with a red clot, and the right ventricle with a mixed clot. The left auricle and left ventrice are both filled with red clot. There are extensive adhesions between the left lung and the thoracic wall. The left lung weighs 1,060 grams. The lower lobe is consolidated; the upper is partially so and very friable, being easily torn while being removed. The adhesions at the apex are more markedly firm than at the other points. On section the upper lobe is found honeycombed with cavities, which are filled with purulent matter. The lower lobe contains a number of small cavities, and the intervening substance is in the stage of caseation. The right lung weighs 860 grams. There is a large cavity at the apex and numerous smaller cavities scattered throughout the lung. Its substance is in the same condition as that of the left lung. The spleen weighs 150 grams. It is normal to the touch, cuts with normal resistance, and its cut surface and capsule-stripped surface are normal. The left kidney weighs 155 grams. Externally it is a little paler than normal. The fat about the pelvis is well developed. Its cut surface is pale and its capsule strips easily, leaving a pale surface. The right kidney weighs 137 grams, and is similar to the left. The liver weighs 1,460 grams, and is normal. The stomach is markedly dilated and its mucous membrane shows evidence of chronic gastritis. There is one small ulcer in the jejunum, and numerous other ulcers, about 0.5 cm. in diameter, scattered along the ileum. All of these ulcers are typically tubercular. The brain weighs 1,350 grams. There is an excess of fluid at the base and a slight effusion beneath the pia mater, but no tubercle are to be seen.

W. M. W.
H. A. S.
J. M. G.

G. M., aged, 30 years; nativity, Missouri; colored; admitted to the United States Marine Hospital, St. Louis, Mo., June 30, 1899, and died October 11, 1899.

History.—Comes to this hospital for rachialgia of five months' duration, never had a pain in back before. Makes water 5 or 6 times a night, not so often during day. Had swelling in one foot and ankle one year ago, which remained for six months, now entirely disappeared for last month. Never had a discharge from penis. Water burned some time ago, but not now. Makes water freely. Had a sore on back with pain in sides. Had sore on penis, hard, pretty painful, short duration, slight discharge. Never had a bubo. Has had sore throat, pains in bones. Glands in neck enlarged. At one time two years ago lasted nearly a year and broke down. Internal treatment. Bowels loose. Ordinary diet. Mixed treatment 5 c. c., t. i. d. Systolic murmur at apex over heart. Pus of a tubercular nature exuding from holes in back on level with umbilicus. Probing discovered a sinus which ran forward and outward on left side, 4 inches deep. Tubercle bacilli found in discharge June 25, 1899. Base of upper lobe of left lung consolidated. Movement of chest slight. Dyspnœa. Heart normal. In injecting sinus and pus cavity with H_2O_2 patient coughs and spits up froth, caused by peroxide.

June 21.—Stop hydrocyanic cough mixture and mixed treatment. Begin cod liver oil, malt, and whisky.

July 15.—Connection between abscess and lung destroyed.

July 25.—Doing better, but still has high fevers.

August 10.—Area of consolidation in upper lobe left lung breaking down. Expectoration purulent. Never has had bloody sputum. Bronchial and cavernous respiration with moist rales over upper part of left lung. Tubercle bacilli present. Guaiacol 0.48 gram t. i. d. given September 11. Increased 0.06 gram daily.

September 30.—Patient always had good appetite. Always feels "tolerable well." Seems comfortable, and seldom complains.

October 2.—Guaiacol discontinued. Ordered ichthyol and distilled water, equal parts, 0.06 gram t. i. d. administered in about a half glass of water. Increased gradually up to 0.60 gram per dose.

October 11.—At 4.30 a. m. night nurse found patient sleeping quietly (he always slept soundly). At 5 a. m. night nurse entered single room in which the patient was isolated, and found him on the floor, dead, as the result of a profuse, pulmonary hemorrhage.

Necropsy (*eleven hours after death*).—Rigor mortis well marked; body emaciated; old scars on both sides of neck, of wounds from suppurating lymph glands. Length of body, 184 cm. Sinus of post lumbar region discharging purulent material. Calvarium, three-fourths cm. thick. Brain: Weight, 1,250 grams, 20 by 14¾ by 7 cm; normal. Left lung: Adhesions about apex; weight, 895 grams; 24 by 19 by 6 cm.; color, blueish black; cavity size of plum in center, filled with fluid blood. Miliary tubercles scattered throughout the lung; interstitial tissue thickened. Right lung: Weight, 580 grams; 24 by 22¾ by 9½ cm.; adhesions over anterior surface of apex. This lung is seat of areas of pigmentary degeneration. Heart: Weight, 300 grams; 14½ by 9 by 6½ cm.; thickness of wall of left ventricle, 2½ cm.; thickness of wall of right ventricle, 1 cm. Heart normal. Spleen: Weight, 100 grams; 11½ by 8½ by 4½ cm.; normal. Right kidney: Weight, 250 grams; 15 by 8 by 4 cm.; capsule peels readily; cortex, 1 cm. thick; normal. Left kidney: Weight, 220 grams; 13½ by 8 by 4¾ cm; normal. Liver: Weight, 1,750 grams; 29½ by 22¾ by 8¾ cm.; normal. Abdominal walls, 1 cm. thick. Appendix normal. Old sinus of lumbar region laid open, disclosing necrosis of left ilium about the crest and posterior superior spinous process.

W. G. S.
J. M. H.

P. P., aged 20 years; nativity, Alabama; admitted to United States Marine Hospital, Louisville, Ky., June 22, 1899; died August 13, 1899.

History.—Nothing is known of his family history. Says he has always enjoyed good health up to a few weeks ago, when he began to have night sweats, cough, and progressive emaciation. About this time he injured his back while at work. For past few days has had diarrhea, several watery movements daily, accompanied by pain but no tenesmus. His stools contain neither blood nor pus. Examination shows patient emaciated, a few mucous râles over apex of right lung. Some enlargement of spleen. Tenderness over whole abdomen; no rose spots. Blood examination shows a great increase in the number of leucocytes. Urine examinations: Sp. gr. 1.005; color, clear pale straw; reaction acid, no albumen or sugar. Temperature ranges between 37° and 39°; once it rose to 40°. Pulse between 72 and 76 beats per minute; a little over 100 beats per minute during the last three days of life.

Treatment.—Diet: Stimulants, opium, and bismuth. The diarrhea improved, but the patient gradually grew weaker until 9.30 p. m., August 13, when he died.

Necropsy (*seventeen hours after death*).—Body that of a slightly built, very much emaciated, young negro man. Rigor mortis totally absent, no scars or discolorations on body. Abdomen retracted. Usual incision made over vault of cranium, no blood escaped. Skull opened and brain removed. Superficial veins filled with blood; sinuses at base in same condition. No exudates on brain surface. Convolutions of cerebrum poorly marked. Three c. c. of a clear fluid in lateral ventricle. Cut surface abnormally moist. White matter studded with minute hemorrhagic spots that disappear when a moist sponge is passed over them. Long median incision made from chin to pubes. No blood on knife, muscles dry and pale, subcutaneous fat has entirely disappeared. Margin of right lobe of liver retracted beneath costal border. Position of other abdominal organs normal. Appendix vermiformis normal and pointing toward true pelvis. Peritoneal coats of intestines very moist; color of intestines normal. About 6 c. c. of a straw-colored, clear fluid in pelvis. Large intestines collapsed. Omentum poor in fat, mesenteric glands slightly enlarged. Thorax opened in usual manner; left lung collapses, right is prevented from doing so by adhesions about apex of upper lobe. Both lungs retract to juncture of ribs and cartilages. No fluid in thorax. Pericardium opened, contains 4 c. c. of a clear, straw-colored fluid. One "milk spot" on heart. Coronary veins very much distended with blood. Heart the size of the individual's fist; weight, 170 grams; fat has almost disappeared from its surface. Left ventricle contains a small amount of dark fluid blood. Right ventricle contains fluid blood of a brighter red color and a quantity of gas. Left auricle contains dark and fibrinous clots. Right auricle contains only fibrinous clots. Heart muscle soft and flabby, no signs of fatty change; endocardium and valves normal; surface of aorta normal. Right lung: Pleura normal, except over upper half of upper lobe; when it has lost its luster, is red and adherent to chest wall; adhesions soft and easily detached, exposing a cavity 1 inch in diameter, filled with pus; opens into a bronchi; incision made through lung from apex to base; upper half of upper lobe presents on its cut surface numerous points from which pus exudes; these points are found to be cavities varying in size from that of a large pin head to the one just described. Lung surface between cavities is of a dark-red color, and scattered over it are a few tubercles; no tubercles along bronchi; on pressure, blood, pus, and a little air exudes. The rest of lung presents a normal appearance, except a moderate degree of hypostatic congestion at base. Left lung normal except the signs of a hypostatic congestion at base. Weight of left lung, 300 grams. Weight of right lung 480 grams. Spleen adherent to diaphragm, slightly enlarged, firm, bluish red; capsule very wrinkled; cuts very firmly; cut surface moderately rich in blood; connective tissue increased; pulp not bulging, weight 200 grams. Left kidney very much enlarged; fat capsule has entirely disappeared. Fibrous capsule strips off very easily, except in one small area that is so adherent to kidney substance that it tears the latter off with it. Color cream white, with a few scattered bluish red areas. Surface smooth, vena stellata well marked. Consistency very soft and tears easily. Cut surface shows the contrast between cortex and medulla has disappeared; cut surface of a uniform yellowish white color. Malpigian bodies prominent. Pelvis, normal; weight 220 grams. Right kidney same as left; weight, 200 grams. Bladder not opened. Stomach collapsed; contains only a small amount of a clear odorless fluid. Mucous surface covered with a tenacious mucus. When latter is removed, a pale mucous membrane is exposed, which is of normal appearance, except for a few submucous hemorrhages scattered here and there. Intestines are next opened. A thin, brownish bile passes into duodenum when gall bladder is pressed upon. Mucous surface of intestines from lower half of duodenum to transverse colon presents a deeply congested surface, with here and there numerous small submucous hemorrhages. No ulceration and no enlargement of lymphoid tissue. Descending colon normal, except for areas of pigmentation presenting the shaven beard appearance. Intestinal coats not thickened. Liver, weight 2,200 grams. Capsules thickened and opaque in places. Color of external surface yellowish white, and areas of brownish red. Cut surface moderately rich in blood. Cuts abnormally easy. Color same as external surface, the areas of cream color predominating over normal areas. Connective tissue apparently not increased. Gall bladder normal and filled with a thin, brownish, yellow-colored bile.

Anatomical diagnosis.—(1) Chronic ulcerative pulmonary tuberculosis; (2) acute catarrhal enteritis; (3) diffuse toxic nephritis, with fatty change; (4) fatty degeneration of liver; (5) acute pensplenitis. Causes of death: Exhaustion from enteritis, together with poisoning from tubercle toxines, and, at the end, venal insufficiency from the extensive fatty degeneration of kidneys.

D. H. C.
J. McM.

J. B.; age, 23 years; nativity, Samoan Islands; was admitted to the United States Marine Hospital, port of San Francisco, Cal., March 26, and died June 5, 1900.

History.—Patient had been ill six months when he applied for admission. Began with a cough, which continued up to the time of his death. About two months prior to admission suffered from dyspnœa and vomiting. Also complained of night sweats and great pain in chest for the fifteen days before admission. Had lost weight rapidly since illness began. Weight, March 26, 1900, 145 pounds.

Physical examination.—Inspection: Great emaciation; chest flat; clavicles prominent; forced breathing, and deficient chest expansion. Palpation: Apex beat felt at left nipple; pulsation in third left interspace; vocal fremitis increased over both apices. Percussion: Tympanitic note in left clavicular region, dullness below this extending into axillary region of same side, dullness over right apex anteriorly, and over both posteriorly. Auscultation: Amphoric breathing over left apex anteriorly and posteriorly; crepitant rales over right apex; bronchial breathing over bases, vocal resonance increased over right apex. The diagnosis of tubercle was made, the bacillus having been found March 28, 1900, and the patient was put on the usual treatment of creosote and cod liver oil. The disease continued to progress rapidly, involving the larynx and middle ear on both sides, causing complete deafness; the physical signs increased in intensity; vomiting was so severe that all medicinal treatment was discontinued and supportive treatment begun. Patient continued to lose weight, weighing, May 5, 118 pounds. Larynx so involved that speech became unintelligible; suffered greatly from dyspnœa, and on June 5 died from exhaustion.

Necropsy (*twenty-one hours after death*).—Body that of a young mulatto, adult, male, well developed but poorly nourished; rigor mortis present. Stained areas over thorax and small vesicles above and below clavicles; subcutaneous fat scanty; abdomen retracted. Anterior mediastinum normal; extensive pleuritic adhesions over both lungs. Lungs so adherent to chest wall and so badly degenerated as to prohibit removal. Section showed caseous areas throughout. Pericardium contained about 100 c. c. of serous fluid. Heart: Weight, 350 grams; muscle flabby; cavities filled with firm fibrinuous clots; valves competent; a few atheromatous plaques in ascending aorta and coronary arteries. Posterior bronchial glands greatly enlarged and caseating. Kidneys: Left, weight 180 grams; right, 175 grams; absence of fat about capsules; capsules nonadherent; the kidneys themselves show parenchymatous changes. Liver: Weight, 1,710 grams; resistent on section; cut surface mottled; centers of labules purple and depressed. Spleen: Weight, 220 grams; consistency firm; outer surface purple and studded with tubercle. Mesentery glands much enlarged. Intestines: Tubercular ulcers in mucous and muscular coats and extending down to serous coat. Brain: Cerebro-spinal fluid in excess, otherwise normal. Petrous portion of temporal bone found filled with caseous matter.

Microscopical report.—Lungs show well-defined areas with caseated centers consisting of a granular material with broken-down cells and nuclear débris; surrounding this is a zone of epitheleoid cells and lymphocytes. The surrounding lung tissue is more or less hyperoemic, and the alveoli filled with a granular material which is coagulated albuminous exudate. Liver: Through substance of the organ are seen small, well-defined areas with crenated centers and a periphery of lymphocytes and epitheleoid cells. Many show giant cells. The intralobular veins are filled with coagulated blood, and the liver cells are small, granular, and atrophic; the connective tissue is normal. The picture is one of beginning tuberculosis and cyanotic atrophy. Kidneys: Glomeruli, descending limb of Henle's loop, and conducting tubules are normal; the spiral and convoluted tubules, also the ascending limbs of Henle's loops, are broken down and degenerated. The cells are finely granular and grayish in color; their nuclei do not take the stain. Specimen shows one small, well-decircular area, which consists of a mass of lymphocytes, epitheleoid cells and nuclear débris. Interstitial cellular tissue is normal. A parenchymatous nephritis and beginning tuberculosis. Spleen: Trabeculæ fairly normal, loose, and flocculent in structure. Malpighian bodies irregular in outline, and lightly packed Malpighian vessels show a thickened intima. Pulp is hyperemic and full of well-defined patches consisting of a central caseating portion with well-defined surrounding zone of lymphocytes and epitheleoid cells, also giant cells in the caseated area. Tuberculosis and hyperemia. Small intestine: Mucous membrane atrophic; villi small; Lieberkuhns' crypts short and illy defined. In submucosa is a thickened area consisting of lymphocytes, plasma cells, epitheleoid cells, and nuclear débris; muscular and serous coats normal. Tuberculosis of small intestine.

A. M. M.
J. M. G.

T. McE.; aged 29; nativity, Maryland; admitted to Sanitary Ranch at Fort Stanton, N. Mex., April 14, 1900.

History (*taken from clinical notes of the medical officer in command, New York, N. Y.*).—Family history: Mother died of tuberculosis; previous history negative. Present sickness dated from October, 1899, with cold, and later cough and expectoration, loss of weight, and dyspnœa. Physical examination showed emaciation, diminished expansion of left chest, fullness in lower part of same, and numerous crepitant râles in entire lung, with tubular breathing and prolonged expiration; heart negative; in right lung tubular breathing but no râles; tubercle bacilli in sputum. (Signed) C. W. T.

Physical examination.—When admitted to Fort Stanton Sanitarium, showed emaciation, characreristic chest, nails, and gums, diminished movements of left chest; very peculiar respiratory movements—a short inspiration and expiration followed by a long and deep inspiration; dullness in left apex and base; numerous crackling râles throughout left lung; occasional râles in right lung; prolonged expiratory murmur superiorly; great dyspnœa; tubercle bacilli found in sputum; pulse rapid, but heart seemed normal as to valvular sounds, size, and position. Died April 27, 1900.

Necropsy (*twenty-two hours after death*).—Inspection of body: Brown eyes, black hair, red-brown moustache. Emaciation; post-mortem lividity and rigor mortis well marked. Calvarium removed; the skull cap, brain case, sinuses, vessels, the brain, and its membranes in normal condition. Thorax: Anterior mediastinum normal. Heart itself normal as to size and condition of cardiac muscle, and all the valves were normal when given the water test. Pericardium contained about 125 c. c. of light, yellowish serous fluid, but was not thickened and did not show any adhesions. Lungs: The left lung showed consolidation in apex, with several small cavities containing muco-purulent matter. Many small tubercular foci were distributed throughout the left lung, especially at its base posteriorly. The right lung had a small cavity in its apex and a few small tubercles scattered throughout. Pleuræ: The left pleura was adherent about the apex and to the diaphragm. The right pleura was in normal condition, as were also the great vessels and nerve trunks. The diaphragm was adherent to the base of the left lung. Abdomen: The omentum, spleen, right kidney, and suprarenal capsules were normal. The capsule of the left kidney was partially adherent, otherwise the organ was normal. The urinary bladder was empty; the organs of generation were normal. The rectum contained semi-liquid feces; the duodenum was normal. The stomach contained undigested milk, and its mucous membrane was congested and ecchymatic. The gall ducts, liver, pancreas, solar plexus, mezentery, small intestines, large intestines, vermiform appendix, and the great vessels were normal. The spinal cord was not examined, because nothing in the history implied disease in that organ.

C. R.
J. O. C.

F. L. (white); male; age, 39; nativity, France; admitted to the United States Marine Hospital, Mobile, Ala., October 31, 1899, and died May 12, 1900, from tubercle of the lung.

On admission patient had a severe cough, which he claimed to have had since February, 1899, and it had been getting worse ever since. He had lost 20 pounds in weight; dullness at the apex of both lungs. Patient had slight pains in side; was suffering from shortness of breath and night sweats. Temperature usually about 37.2° C. Tubercle bacilli were found in sputa.

Necropsy (*eight hours after death*).—Body of a medium white male, very much emaciated; rigor mortis not well marked; no lividity observable; pupils dilated. The body is opened by the usual long incision, reaching from the chin to the symphysis pubis in the median line of the body. The muscles are somewhat pale; the intestines are distended. The arch of the diaphragm is between the fifth and sixth ribs. The pleura is almost obliterated by adhesions; what is left is thickened into a mass. The lungs are infiltrated with tubercle and contain numerous cavities, but little lung tissue remains, and this is bound down by adhesions so that it is impossible to remove it except in small pieces. The pericardium contains a dark blood-colored fluid, about 50 c. c. The heart weighs 550 grams. On section the left ventricle is hypertrophied, pale, and flabby, but the valves competent. There is no fluid in the abdominal cavity; position of parts normal. The gall bladder is distended with bile; the spleen contains a few old hemorrhagic infarcts, and weighs 260. The left kidney weighs 210 grams; capsule peels readily; the line between cortical and medullary substance is well marked. The right kidney same in appearance as left, and weighs 180 grams. The right suprarenal capsule is normal, and weighs 15 grams. The left suprarenal capsule is slightly atrophied, and weighs 10 grams. The liver is granular in appearance, and bleeds freely on section; weight, 1,750 grams; color, dark brown. The stomach is empty. The soft parts covering the skull are divided by an incision carried transversely across the head and reflected back. The skull cap is very much thinner apparently than usual. The meninges are somewhat congested, otherwise normal. Brain is anæmic. The weight of large brain is 1,180 grams; small brain, 200 grams. On section brain is found to be normal.

B. G. A.
W. P. McI.

A. H. (colored); male; age, 62; a native of Maryland; admitted to the United States Marine Hospital, Mobile, Ala., November 12, 1896; was discharged November 26, 1896, as "not improved;" was readmitted to the hospital November 27, 1896, and died April 6, 1900, from tubercle of the lung.

History.—On admission patient was nervous, debilitated, and had a harrassing cough, with profuse expectoration of lumps of mucus in a frothy solution. Patient stated that he had had good health during his entire life, the only illness being an occasional bad cold and chills and fever. He was exposed to severe weather during the month of March, 1896, from which he contracted a "severe cold," followed by loss of appetite, chilliness, and debility. On or about May 1, 1896, he began to cough with rather a peculiar expectoration, with an occasional pain in left side, loss of weight, with slight remissions for about ten days before admission, when he suffered with shortness of breath and night sweats. Patient had some dullness over apex of right lung; over other portions of the lungs the percussion note was not changed from normal. Auscultation showed subcrepitant râles over the entire chest, mixed with moist mucous rales. There was also the cracked-pot note at the apex of right lung, showing the formation of a cavity. At this time no examination was made of sputa, but later the examination showed tubercle bacilli in large quantities. Patient on admission had a temperature of 40° C.

Necropsy (*eleven hours after death*).—Body of a tall, yellow negro; male; very much emaciated; rigor mortis well marked; no lividity observable; about one pint of yellow fluid escaped from mouth; no discharge from nose or ears; pupils dilated; feet swollen; skin over skullcap is very tightly adhered. The body is opened by the usual long incision, reaching from chin to symphysis pubis in the median line of the body. Muscles are somewhat pale; the intestines are somewhat distended; the arch of the diaphragm is between the fifth and sixth ribs. The right lung is almost entirely obliterated and is a mass of broken-down and fibrous tissue and can not be removed. The left lung weighs 1,100 grams, is œdematous, and some emphysema in posterior portion. The pleura is almost obliterated by adhesions and filled with pus. Pericardium filled with dark clotted blood, otherwise normal. Heart weighs 300 grams; valves were competent, heart muscle thickened, position of parts normal. No fluid in abdominal cavity; gall bladder distended and full of bile; the spleen contains hemorrhagic infarcts under capsule; weighs 170 grams. The right kidney weighs 110 grams; on section was hard and granular and slightly congested. The line between the cortical and medullary substance is ill defined. The left kidney weighs 150 grams; on section it is the same as right. Capsule of both kidneys peeled readily. The right suprarenal capsule is normal; weighs 15 grams. The left is normal and weighs 10 grams. The liver is granular and sclerotic and bleeds freely on section; blood vessels do not close when cut; weighs 1,210 grams. The soft parts covering the skull are divided by an incision carried transversely across the head and reflected back. The skullcap is narrow and very thick; on opening dura mater the membranes are found to be normal; on section the brain appears to be normal and there is no fluid in the ventricles; brain weighs 1,080 grams; small brain, 210 grams. The brain appears smaller than usual.

B. G. A.
W. P. McI.

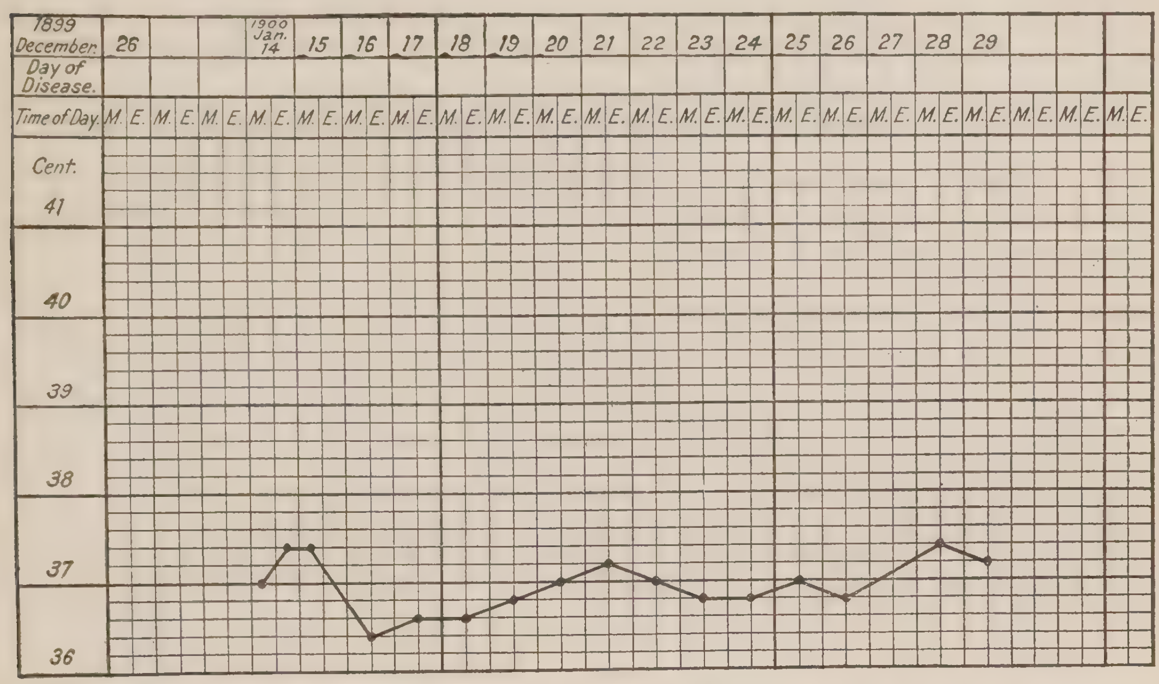
G. C., age 20 years; nativity, California; was admitted to the United States Marine Hospital port of San Francisco, Cal., December 26, 1899, and died March 20, 1900.

History.—The patient's mother, two brothers, and one sister died of tubercle. The patient had the usual diseases of childhood, but since that time had not suffered from any serious illness until the present. He denied all venereal history. His trouble began about a month before coming to hospital, with the following symptoms: Dry cough, worse at night; insomnia; anorexia; progressive loss in weight and strength; and slight constipation. He had night sweats. Physical examination showed him well developed, but very poorly nourished, very pale, the hands cyanosed, voice hoarse. There was more motion on left than right side of chest. Vocal fremitus was increased near right apex. Moist rales were heard over upper portions of both lungs, but no areas of dullness were found. The patient seemed to improve somewhat under treatment at first, but examination a month later showed markedly dull areas at both apices, below left clavicle, over all the right upper lobe posteriorly and in left supra-scapular region. Vocal fremitus was increased over both lungs. Bronchophony was audible all over right upper lobe anteriorly, where also the respiratory murmur was suppressed. There were moist râles over lower portion of right lung and blowing respiration near the base. On the left side there were bronchial breathing over upper lobe, crackling, and moist râles, and diminished respiratory murmur below. The heart's action was rapid, but without murmur.

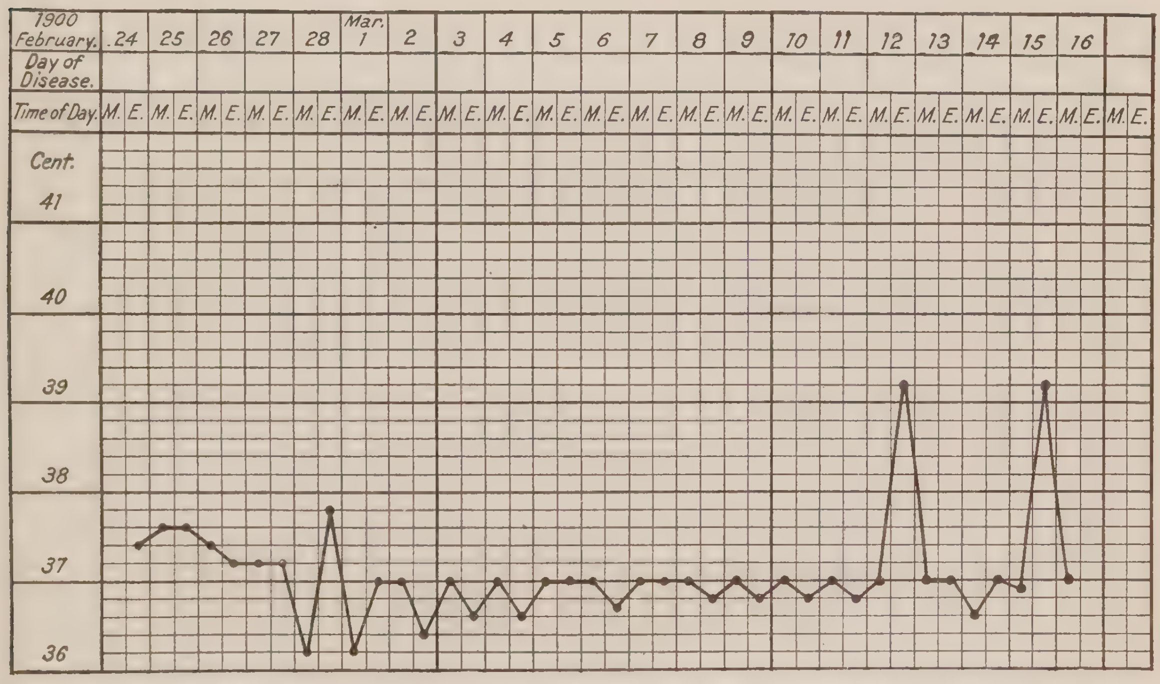
In spite of the increase of trouble in his lungs the patient gained a trifle in weight until early in March, 1900, when he began to decline very rapidly and was forced to keep to his bed. His cough became more troublesome and obstinate, and he suffered accutely from pain in both feet and ankles. No œdema or other marked change could be noted, however. The hoarseness of his voice increased greatly, and he suffered much from night sweats. On the 8th of the month tubercle bacilli were found in his sputum for the first time, though frequent examinations had previously been made. The patient grew weaker very rapidly and died March 20, 1900, at 11 p. m. His mind remained clear until a few hours before death.

Treatment consisted of high nutritive diet, creosote, a mixture of equal parts of maltine, whisky, and cod-liver oil, arsenic and iron as tonics, atropin and aromatic sulphuric acid to relieve night sweats, and Dobel's solution and compound tincture of benzoin locally to the throat.

Necropsy (*fourteen hours after death*).—The body is that of a fairly well-developed, much emaciated, young, adult, white male. Post-mortem rigidity marked; post-mortem staining slight. The abdomen is tense, but not unduly prominent. Abdominal and omental fat is scanty. The intestines contain some gas. The diaphragm has its arch on a level with the fourth rib. The left pleura shows some adhesions near the apex. The right pleura contain numerous firm adhesions over the two upper lobes on all surfaces. There is no fluid in either pleura. The anterior and all mediastinal glands are much enlarged. The pericardium contains about 100 c. c. of clear serous fluids. The right auricle contains a small chicken-fat clot. The right ventricle contains fluid blood and a few small red clots. The left auricle is filled



[United States Marine Hospital, port of San Francisco, Cal. Name, G. C.; age, 20 years; disease, tubercle.]



[United States Marine Hospital, port of San Francisco, Cal. Name, G. C.; age, 20 years; disease, tubercle.]

with fluid blood. The left ventricle is in systole and empty. The heart is small, weighing only 235 grams. All its valves are normal in appearance. On section the heart muscle is pale, but firm. There is no evidence of tubercle anywhere in the heart. The aorta is small and of slight caliber. The left lung weighs 750 grams. In the apex is a cavity about the size of a walnut, containing caseous material. There are numerous small cavities throughout the upper lobe, and the whole of the lung substance is thickly studded with tubercle. The base of the lower lobe is in a condition of atelectasis, and gives no crepitation on palpation. The right lung contains a cavity involving nearly the whole of the upper lobe, containing some caseous matter and some fluid. The lung as a whole is so degenerated that it can not be removed entire. The middle lobe is very thickly studded with tubercles and has some small cavities. The lower lobe also contains tubercles, but is in better condition than the rest of the lungs. There are some firm adhesions between the liver and the diaphragm, and between the liver and the small intestines. The gall bladder is moderately distended with bile. The liver weighs 1,750 grams. Its upper surface is normal. The under surface shows some pale patches. On section there is evidence of passive congestion. There are no tubercles present, either on the surface or in the substance. The left kidney weighs 200 grams. Its capsule strips easily. The substance is pale. There is no evidence of tubercle. The right kidney weighs 200 grams and is similar to the left. The spleen weighs 205 grams and is pale and flabby. Its capsule is adherent. On section it is of a light-brown color, soft, but not brittle. The intestines show, in the ileum and ascending colon, numerous tubercles. These are thickest in the lower part of the ileum, and here are also found a number of well-marked ulcers. The brain weighs 1,450 grams and shows evidence of congestion; otherwise normal.

W. M. W.
R. L. W.
J. M. G.

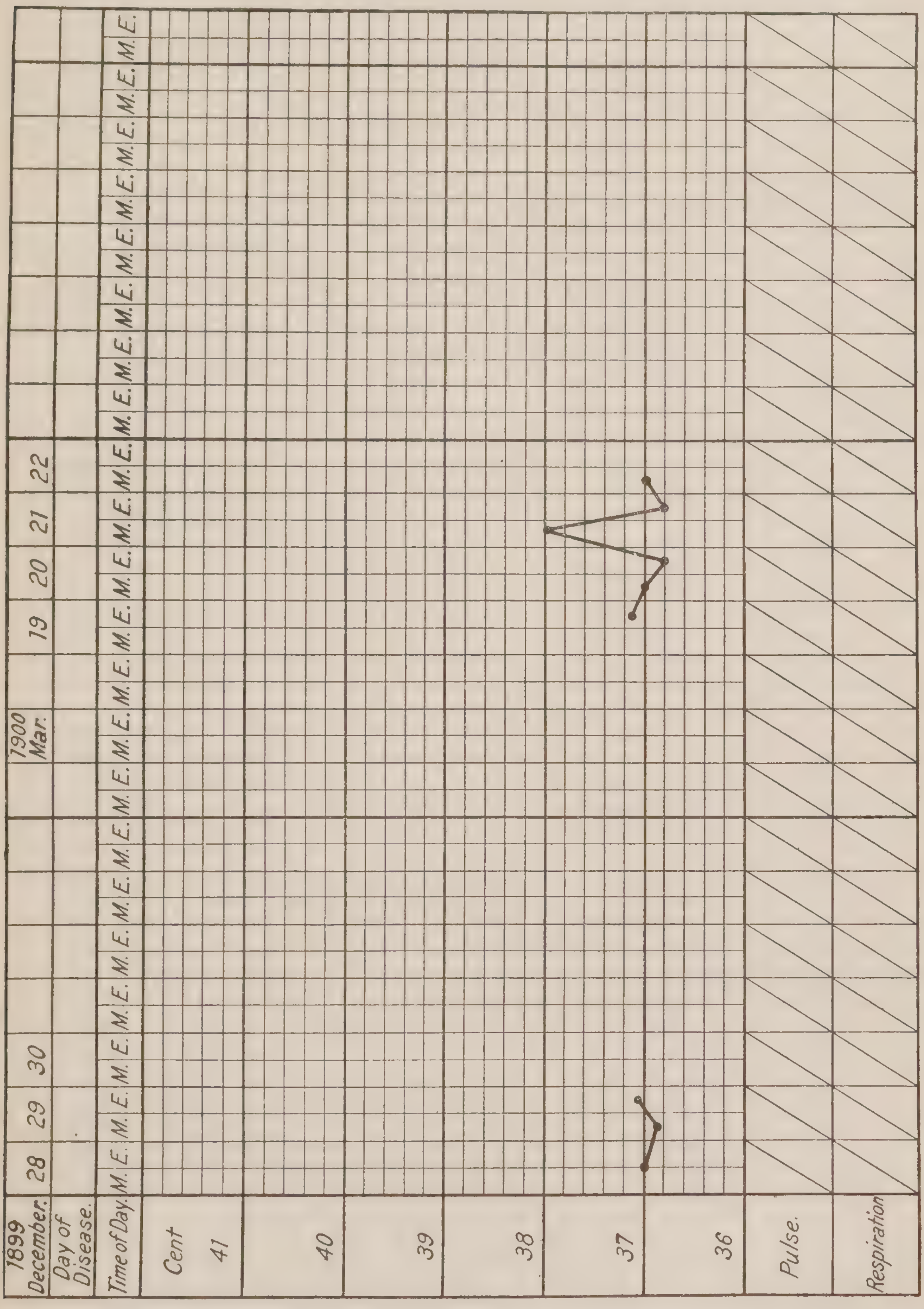
R. S., aged 27 years; nativity, Illinois; was admitted to the United States Marine Hospital, port of San Francisco, Cal., March 19, and died March 23, 1900.

History.—Patient had been treated in this hospital from December 28, 1899, to January 3, 1900, at which time the following history and symptons were secured: Parents alive and well; one brother died of typhoid fever; two brothers and one sister now living. His present disease began with a cold about three years ago. For some time past has coughed much at night and early morning; has been having night sweats and free expectoration. For the last six months has been losing in weight and strength and having dyspnœa on exertion. About two years ago coughed up some blood. Appetite good; some diarrhea; insomnia. Pulse rapid, being as high as 136 on December 29. Temperature normal. Physical examination showed patient fairly well nourished. Dyspnœa marked; chest expansion slight. The apices of both lungs are found flat on percussion. Below third rib both lungs are slightly hyperresonant. Bronchial breathing is heard at both apices as low down as fourth rib. Expiration is markedly prolonged. There is indication of a cavity at the apex. Heart's action is somewhat irregular. On examination of the sputum tubercle bacilli are not found, but tubercle of lung is clearly diagnosed by physical signs. Examination of urine negative. Patient discharged, improved, January 3, 1900, at his own request. Later he applied at the out-patient office for treatment. March 19, 1900, was brought to hospital in the ambulance. He was very weak and much emaciated. The lungs showed extension of the tubercular process. The larynx had been involved for some time so that he could swallow only liquid food. Some diarrhea present. Pulse rapid and weak. On examination of the sputum, tubercle bacilli were found in large numbers. Some albumen and pus corpuscles found in the urine. Temperature slightly subnormal except for a slight rise March 21. March 22 there was marked cyanosis; pulse rapid (140) and very weak. There was no complaint of pain. Death came quietly at 2 a. m. March 23.

Necropsy (*twelve hours after death.*)—The body is that of a poorly developed, emaciated white adult male. Post-mortem rigidity slight. Abdominal fat is scanty. Anterior mediastinal glands are much enlarged. Pericardium contains 175 c. c. of straw-colored fluid. The right auricle contains a large chicken-fat clot; the right ventricle is full of fluid blood. The left auricle is also full of fluid blood, while the left ventricle contains a mixed clot. The heart weighs 340 grams. Its muscle is pale; fat, fair in amount; valves competent; no evidence of tubercle or atheroma. The right and left visceral pleura are adherent to the chest walls throughout. The left lung has cavity the size of a small lemon in its upper lobe. A small cavity is also present in the lower lobe. Both lobes are extensively infiltrated with tubercle.

The right lung contains many small cavities and is also thickly infiltrated with tuberculous material. The omental fat is normal in amount. The liver contains some firm adhesions on its posterior surface. Liver surface rather dark and mottled; section normal; weight, 1,650 grams. The left kidney weighs 195 grams; capsule adherent; section pale and flabby. Right kidney weighs 170 grams; capsule strips easily, otherwise same as left. The spleen weighs 215 grams and appears normal. The ileum is thickly studded with tubercular ulcers which in several places extend to the serous coat. The brain weighs 1,500 grams. The cerebro-spinal fluid is slightly in excess. It is otherwise normal.

R. L. W.



[United States Marine Hospital, port of San Francisco, Cal. Name, G. C.; age, 20 years; disease, tubercle.]

H. K.; aged 56; nativity, Illinois; admitted to the United States Marine Hospital, St. Louis, Mo., December 7, 1899; died January 1, 1900.

History.—One year ago he developed a slight cough and began to lose flesh and strength. His health failed gradually, and in April, 1899, he commenced to have night sweats. There has been no pulmonary hemorrhage. On admission he complains of a profuse watery diarrhea, of cough, worse in the morning, and expectoration of thick, greenish sputum. Of late his feet have been swollen, and a dull lumbar pain has also developed. On examination he is found to be highly anæmic and emaciated. The chest is flattened antero-posteriorly and sunken above and below the clavicles; the tactile fremitus is increased over the upper portions of both lungs; resonance is poor in these localities, and the breathing is semibronchial, with numerous moist râles. The heart is weak and the pulse rapid and compressible. The liver extends below the costal margin; the legs are highly œdematous. The urine shows one-half per cent of albumen and epithelial casts, the amount in twenty-four hours averaging about 800 c. c. The sputum contains tubercle bacilli. The patient steadily declined; the temperature was hectic, rising at times to $39\frac{4}{5}$° C.; the diarrhea continued, but he never had hemoptysis. He died from exhaustion on January 1, 1900.

Necropsy (fifty-nine hours after death).—Body of a highly emaciated white man, weighing about 85 pounds. There is no post-mortem lividity, but rigor mortis is marked. The skull is normal; the soft meninges show slight grayish infiltration over the sulci on the convex surface of the brain. The brain itself shows no gross changes. The anterior mediastinum is negative. The pericardium is much thickened on the left side and densely adherent to the pleura, but there are no adhesions between the parietal and visceral pericardial layers; the sac contains about 10 c. c. of a clear straw-colored fluid. The heart weighs only 278 grams and is pale, flabby, and fatty; its surface shows a small milk spot. The right heart chambers are filled with a chicken-fat clot; the pulmonary valves are normal, the tricuspid leaflets, however, showing slight thickening. The heart muscle is pale and a trifle yellow. The mitral valve shows decided thickening and opacity. Both aortic and pulmonary valves respond to the hydrostatic test, although the former are slightly sclerotic. There are several small whitish patches on the intima of the aorta, and it also presents a large number of fine whitish lines radiating upward and outward and present arborescent appearance. The pleura on the left side is densely adherent, and the lung has to be torn away from the chest wall; the two lobes are tightly bound together; the surface is highly anthracotic; on section, the lower lobe is found congested and fibrous, while the upper lobe is grayish in color, infiltrated with tubercular nodules, and near the apex shows a cavity 5 cm. in diameter and containing thick grayish yellow pus. The right pleura is less adherent than its fellow on the opposite side. The lung surface is mottled and anthracotic, the lobes being firmly adherent. The lower lobe is reddish and crepitates well, but shows a few scattered tubercles. The middle and upper lobes are hard, diffusely infiltrated, grayish in color, with a marked excess of fibrous tissue and numerous small cavities, averaging about 1 cm. in diameter. The bronchial glands are enlarged and hard. The abdominal viscera are in normal position, and intestines are pale and not distended. The spleen weighs 195 grams, is hard and of reddish slate color. The left kidney weighs 167 grams; the capsule strips readily; shows furrows remaining from embryonic lobulation; the cortex is slightly pale and there is an excess of fat about the pelvis. The left suprarenal body is normal. Right kidney weighs 190 grams, is paler and more fatty than its fellow; right suprarenal body normal. The peritoneal fluid is small in amount and there are no adhesions. Great omentum only 8 cm. long. The mesentery is much thickened and contains many hard enlarged lymphatic glands. There is one small tubercle on the peritoneal surface of the small intestine. Stomach is small and practically empty. The small intestine presents one tuberculous ulcer about 1 by 2 cm., elevated, grayish, with its long axis transverse and situated on the free border of the intestine. Appendix is thin and about 5 cm. long and has no adhesions. The large intestine is normal except for some hæmorrhoids. Liver weighs 1,310 grams; is pale, denser than normal, and has several fibrous bands running across its surface. The gall bladder holds 38 c. c. of grumous, mucoid, and yellowish fluid, and also contains one sacculated gallstone, which is black externally, friable, light, measuring $1\frac{3}{4}$ cm. in diameter. The bladder and generative organs show no deposit of tubercle. The prostate is quite small and soft.

E. R. E.
W. G. S.

Pulmonary œdema.

J. M., aged 41 years; nativity, Illinois; color, white; admitted to United States Marine Hospital, Detroit, Mich., October 2, 1899; died October 12, 1899.

History.—Enteric fever during childhood. On admission was suffering from effects of fall, which occurred three days previous. On examination found face cut slightly in several places, left arm paralyzed, and left leg partially paralyzed, tactile sensibility lessened, and areas of anesthesia could be demonstrated. Complained of much pain in left shoulder, but no fracture could be found, the parts all occupying their proper positions. Patient had been drinking heavily and was considerably under the influence of liquor; tongue coated; bowels constipated; marked nervousness, passing into delerium; retention of urine; marked dyspnœa accompanied with inability to swallow; quick decline, followed by death, which occurred October 12, 1899, 12.25 a. m.

Necropsy (*fourteen hours after death*).—Rigor mortis marked. Post-mortem lividity over dependent portions. On opening the cranial cavity could find no fracture of the skull. Brain weighed 1,400 grams, was hyperemic and congested. The dura was congested and adherent along the vertical portion of longitudinal sinus. Lungs were dark in color and distinctly œdematous, small tubercular areas were found in the apicies. Weight of right lung, 775 grams; left lung, 650 grams. The pleura was adherent throughout the greater part of its extent on both sides. Heart normal; all valves sufficient; ante-mortem clot in right ventricle; weight, 307 grams. Liver dark in color and much congested; weight, 1,500 grams; gall-bladder contained about 50 c. c. of dark liquid. Left kidney appeared normal; weight, 270 grams; right kidney was not in its usual position, but was found higher up and situated near the spinal column, on posterior wall of the abdominal cavity. It was rudimentary in character; the cortical portion could be distinguished, but the medullary portion was entirely wanting. Spleen dark blue in color, œdematous; weight, 120 grams. All other organs normal.

J. G.

Tuberculosis, pleura and intestines.

C. H.; aged 26 years; nativity, Scotland; admitted to United States Marine Hospital, Portland, Me., December 17, 1898; died December 30, 1899.

History.—Early symptoms noted were simply those of bronchitis. During the spring of 1899 he improved and gained greatly in flesh. Again there was a return of cough and debility and progressive loss of flesh. In June tubercle bacilli were reported in sputa. In July a small effusion was detected in right pleura. Later this increased, and in August the right chest was aspirated and 1,600 c. c. of pus withdrawn. Physical examination had shown no evidence of disease in left lung. A few days later, under ether, an incision was made in right midaxilla over seventh rib, a portion of which was removed to allow free drainage. One thousand five hundred c. c. of pus was removed. The pleura was irrigated, and drainage tubes inserted. Previous to operation the sputum was examined several times for tubercle bacilli with negative results, but the pus from pleural cavity was found to contain the bacilli in profusion. Efforts were made to help the compressed right lung to expand and to keep the pleura free from pus. For a while the abscess cavity contracted in size, and the discharge of pus lessened. Some improvement in general condition accompanied. Fluroscopic examination of chest corresponded with physical signs in indicating that left lung was not diseased; but improvement was only temporary, and he wasted slowly. Diarrhea became a prominent symptom toward the end, but sputum, after opening right pleura, was well-nigh absent and, although frequently examined, never was found to contain tubercle bacilli.

Necropsy (*four hours after death*).—Body emaciated. Slight rigidity. Œdema of lower extremities. An opening exists, 6 cm. long, into right pleura and part of seventh rib is wanting, the posterior end visible, necrosed. Skull cap, membranes, and brain negative. Weight of brain, 1,500 grams. Right lung compressed into small area. No adhesions except at root of lung. A little pus in right pleura. Pleura thick; 40 c. c. of clear fluid in left pleural cavity. Adhesion at left apex. Weight of left lung, 500 grams. Bronchial glands enlarged. No excess of fluid in pericardium. Heart weighed 285 grams. Valves normal. One atheromatous area in thoracic aorta. Spleen weighed 400 grams. Section has the appearance of numerous translucent masses. Weight of left kidney, 350 grams; of right, 300 grams. Capsules not adherent. Section pale. Ureters, adrenals, testicles, urethra negative. Small intestines quite red on mucous surface; contain no feces. Redness increases toward cæcum. A few ulcers are scattered through ileum; in rectum a small number. Omentum and mesentery negative. Bile ducts patulous. Liver negative externally; section chocolate, dotted with white points; weight, 1,675 grams. Retroperitoneal glands enlarged. Mucous membrane of stomach quite red.

S. D. B.

Tubercle of lungs and mesenteric glands.

R. H. McL. (white); aged 55 years; single; occupation, sailor.

Family history.—Mother died of consumption when he was quite young; father negative; no other member of family was so affected, so far as he knew.

Personal history.—Nine years ago, while at sea, he contracted a severe cold, which settled upon his lungs. He received treatment, and cough and expectoration ceased for a while, but returned later. These periods of remission would soon be followed by aggravated symptoms of cough, expectoration, etc., each time lasting longer. In 1896 he was treated in this hospital, and left here considerably improved, sailing for Brazil, where he remained one year. In 1898 he was treated again for same trouble in marine hospital at Staten Island, New York.

He was admitted to this hospital November 2, 1899, and at that time presented unmistakable signs and symptoms of the last stages of tubercle of lung. His general physical condition was that of a complete wreck. Emaciation very marked, pectoriloquy, night sweats occasionally. Physical examination showed that both lungs were completely invaded, and all signs of cavities were easily detected. Treatment, supportive. Stimulants were freely given, alcohol and strychnine. Most nutritious diet. Patient failed rapidly, and death occurred on November 19.

Necropsy.—Post mortem lividity in dependent portions of body. General nourishment very poor; pupils moderately dilated; rigor mortis slight. On removing the calvarium the membranes of the brain were considerably injected. The brain also injected; otherwise normal in appearance; weight, 1,240 grams. Upon opening the abdominal cavity it was found to contain a considerable quantity of fluid. Great omentum markedly congested. Thoracic cavity: Pluræ congested and containing some fluid. Pericardial sac was normal in appearance and contained about 10 c. c. of fluid. Heart fatty, all valves competent, but edges of mitral and tricuspid valves somewhat thickened; small ante mortem clot in right auricle; weight of heart after opening, 300 grams. Right lung congested and indurated; cavities and tubercles throughout; weight, 1,055 grams. Left lung same as right; weight, 1,040 grams. Larynx and trachea normal in appearance. Contents of abdominal cavity: Stomach small and empty; small intestines contained gas and small amount of fluid; mesenteric glands enlarged and filled with tubercles. Large intestine and rectum were normal in appearance. Liver pale, but otherwise normal in appearance; small concretion in right lobe; gall bladder and ducts distended; weight of liver, 1,510 grams. Left kidney large, slightly lobulated; tubercles in cortex; weight, 190 grams. Right kidney same as left; weight, 185 grams. Spleen friable and congested; capsule adherent; weight, 135 grams. Bladder empty; walls thickened. Prostate much enlarged.

G. M. C.
G. P.

Lumbar abscess—tubercle of lung—necrosis of vertebræ.

W. C. (colored); aged 23 years; nativity, Tennessee; admitted to the United States Marine Hospital, St. Louis, Mo., August 25, 1899, and died October 8, 1899.

History.—Eight months ago patient began to be troubled with pain in lumbar region, on either side of vertebral column. Suffered this way for six months before consulting a physician, then had an abscess opened on each side. These wounds are still open and discharging pus. Has lost 50 pounds in weight. Four months ago began to have pain in left side of chest; also some cough. Has diarrhea now. Appetite is good; "cannot get enough to eat." Cough is dry, expectoration scanty. Tubercle baccilli demonstrated. Examination of left lung reveals bronchial and cavernous respiration over apex and upper portion, with moist râles. Right lung: Areas of consolidation with bronchial and broncho-vesicular respiration over upper and middle lobe. Given guaiacol, m. viii, t. i. d., increasing m. i daily until discontinued. Anodyne cough mixture 4 grams p. r. n. Mild intestinal antiseptics administered to antagonize but not absolutely check the diarrhea. Sinus irrigated and dressed daily.

September 5, 1899.—Complains for first time of anorexia.

September 25, 1899.—Complains of excessive weakness of back (lumbar region). Retains guaiacol. No nausea. Ordered tr. nux vomica 0.30 gram and tr. gentian compositus 4 grams t. i. d., one-half h. a. c.

October 4, 1899.—Guaiacol reduced one half. Has remained in bed for last few days. Expectoration greatly increased. Cavity in left apex becoming larger. Almost clear pus expectorated. Tubercle bacilli abundant. Diarrhoea continues. Spts. frumenti 16 grams t. i. d.

October 7.—Confused mentally. Gives irrelevant answers. Spts. frumenti 16 grams t. i. d.

October 8, 1899.—Died at 9 a. m.

Necropsy (seven hours after death).—Rigor mortis well marked. Body much emaciated; length, 184 cm. Brain, 25 by 23 by 7 cm.; weight, 1,150 grams. Calvarium three-fourths cm. thick. Brain undersized, otherwise normal. Abdominal wall 1.5 cm. thick. Abdominal cavity contained 150 c. c. of free fluid. Right lung totally adherent; weight, 670 grams; dimensions, 22.5 by 15 by 7 cm.; apex and upper lobe filled with mutiple pus foci, varying in size from a pin head to a split pea. Left lung not removed on account firm adhesions and rupture of lung substance and abscess cavity of apex while attempting to break up adhesions. Probably 75 c. c. free pus escaped from abscess cavity. Lung seat of extensive tubercular changes. Heart, 9 by 14 by 5 cm.; weight, 250 grams. Thickness of left ventricle wall, 1.75 cm.; of right ventricle wall, 0.50 cm. Attached to the colon along its entire length is a fringe of gelatinous nodules, varying in size from a pea to a lima bean. Intestines pale and normal. Right kidney, 12 by 7 by 3 cm.; weight, 150 grams. Cortex 0.75 cm. thick. Congested. A few tubercular nodules scattered throughout kidney substance. Left kidney, 12.5 by 8 by 4 cm.; weight, 160 grams. Cortex 0.75 cm. thick. In similar condition to right kidney. Spleen, 11 by 8 by 4 cm.; weight, 150 grams; normal. Liver, 25 by 19 by 9 cm.; weight 1,370 grams; normal. Sinuses in lumbar region still discharging. Incision down to vertebral column shows caries of lumbar vertebræ.

J. M. H.

Fusiform aneurism of the ascending aorta.

W. J.; aged 68 years; nativity, Maryland; admitted into the United States Marine Hospital, Baltimore, Md., April 27, 1899; died December 21, 1899.

History.—Had been ill for about eighteen months. When admitted to hospital complained of a very troublesome cough with white, frothy expectoration. Palpation detects an increase of tactile fromitus over both lungs and, together with inspection, shows a deficiency in expansion of the chest on the right side. Percussion located a dull area at the base of the right lung anteriorly, also at the apex of the same. Auscultation revealed subcrepitant râles at the base of the right lung and sonorous râles at the base of the left lung. Microscopical examination proved the presence of tubercle bacilli in the sputum.

May 15.—Had a severe chill, followed by a rapid rise of temperature; the following day there was an intermission, succeeded on the next day by another seemingly malarial paroxysm. A blood examination demonstrated the existence of the malarial organism in the circulation. The administration of quinine controlled the malarial attacks after a short course of treatment. The tubercular infection progressed slowly, the cough becoming more distressing, with the occasional appearance of blood in the sputum. Hemorrhoids developed, and later prolapsus of the rectum. The patient was compelled to remain in bed during the last few months of his illness.

Necropsy (five hours after death).—External appearance: Body 6 feet in height, of large frame, and greatly emaciated. Post-mortem lividity, slight; skin exceedingly smooth and white, free from blemish. Pericordium normal. Heart somewhat dilated and contains soft dark clot. There is some excess of fat deposited along the interventricular and auriculo-ventricular borders. The aortic valves are smooth and competent, although the aortic orifice is enlarged. The heart weighs 360 grams. The aorta, ascending, is greatly dilated with all coats intact and perfectly smooth, forming a small fusiform or tubulated aneurism. The pulmonary arteries were also dilated somewhat. The left pleura was adherent to the lung in several places. The left lung was removed with difficulty because of adhesions. Weight of left lung, 518 grams. The right lung could not be removed except in small pieces on account of general adhesions to the adjacent structures and the disintegrated condition of the lung tissue. Both lungs were tubercular. The liver was enlarged, pale in color, irregularly nodular in shape with rounded edges, and cut with considerable resistance; weight, 2,650 grams. The gall bladder was distended. The right kidney weighs 155 grams; cortex firm; there exuded on pressure from the orifices of the cut uriniferous tubules a very fine white gritty deposit. The renal calyx contained small deposits of deep orange-colored fat. The left kidney weighed 135 grams and presented much the same appearance as did the right. The spleen was indurated and weighed 75 grams. The membranes of the brain were œdematous and firmly adherent at the occiput to the surface of the brain. The brain weighed 1,370 grams.

T. B. P.
G. P.

H. W.; age, 52; nativity, Norway; admitted to the United States Marine Hospital, Stapleton, Staten Island, November 16, 1899; died December 16, 1899.

Family history.—Negative.

Previous history.—Has always been healthy, excepting in 1873, when in West Indies, he had "an attack of venereal disease."

Present illness.—Began three weeks ago with headache and pains over entire body. Has pain over entire body, and chilly sensations. Cold sweats in morning. Has dry cough and vomits occasionally. Appetite poor. Can take nothing but milk as nourishment. Tongue coated. Bowels active.

Physical examination.—Inspection: On exertion has some dyspnœa. Chest expands equally. Expansion good. Abdomen flat. Supraclavicular depression marked. Auscultation: Lungs negative. Second heart sound accentuated. Palpation: Abdomen tender; tenderness most marked over liver and spleen. Percussion: Lungs negative. Liver, dullness increased downward.

Treatment.—Magnesium sulphate 20. Sig., at night.

November 17.—Bowels moved freely; feeling somewhat better; a cough mixture prescribed, and calomel and soda bicarbonate for disordered stomach. Temperature, 38.2°. Quinine sulphate 1.3 three times a day. Patient continued to improve until night of November 22, when he again had sweats and chills.

November 23.—He was put on Warburgs tincture and improved on this treatment.

November 24.—He was put on elixir ferri, quinine, and strychnine.

November 25.—Had fever in afternoon and evening.

November 26.—Had attack of vomiting several hours after eating.

November 28.—Patient had another attack of vomiting half hour after eating.

November 30.—Feeling bad. Appetite poor.

December 1.—Has cough with mucopurulent expectoration. Hæmoptysis, tongue dry and coated.

December 3.—General condition poor; slightly jaundiced. Expectoration more profuse. Bowels diarrhetic.

December 5.—Complaining of sore throat. Put on creosote and oleum thyline in vaporizing lamp for inhalation.

December 9.—Throat worse. General condition unimproved.

December 11.—Coughing considerably. Throat very sore. Extremely weak. Vomiting and diarrhea. All medicines discontinued excepting atomizer.

December 12.—Diarrhea same. Opii pulv. 0.36; plumbi subacetate 1.08; Mft. pil No. 12. Sig., one three times a day.

December 14.—Throat same. Diarrhea less.

December 15.—Diarrhea ceased. Patient extremely weak. Buccal mucous membrane dry and harsh. Some mucus in larynx, causing obstruction to respiration.

December 16, 9 a. m.—Respiration of suffocative character. Spasmodic action of epiglottis. Pulse small and intermittent. Condition growing worse.

12 noon.—Condition much worse. Covered with cold perspiration. Pulse extremely feeble. Strychnine hypodermatically.

4 p. m.—Patient sinking. Pulse imperceptible at wrist. Hot-water bottles applied to trunk and extremities.

6 p. m.—Sinking rapidly. Strychnine hypodermatically every hour.

8 p. m.—Patient moribund.

10.30 p. m.—Patient died.

Necropsy (sixteen hours after death).—Body, male; white; greatly emaciated; suggillations well marked; rigor mortis prominent. Incision from symphysis of jaw to pubic symphysis. Sternum removed. Subcutaneous fat small in amount. Anterior mediastinum negative. Remains of thymus gland negative. Pericardium normal. Heart small, but position normal. Coronary veins enlarged. Left ventricle contracted, containing small amount of clotted blood. Right ventricle normal, containing small amount of dark fluid blood. Right auricle containing dark-clotted blood, also chicken-fat clot. Left auricle containing chicken-fat clot. Mitral valves show calcareous changes. Tri-cuspid valve normal. Organized clot found in right auricular appendix. Aortic semilunar valves normal. Pulmonary valves also normal. Heart muscle shows fatty changes. Weight of heart is 305 grams. The great vessels normal. Sinuses of valsalva distinct. Coronary arteries patent. Lungs: Right lung bound by adhesions to pleura; pleura adherent throughout its entire extent; adhesions especially well marked at apex; on section, lung tissue shows marked tubercular condition; tubercles especially well marked in apex; lower lobe shows congestion; weight, 1,160 grams; crepitates, floats. Left lung: Pleura adherent to lung; lower lobe shows pneumonic process in stage of red hepatization; on section, lung also shows general tubercular condition; weight, 1,320 grams. Both pleuræ very much thickened and presenting rough surfaces. Diaphragm normal. Liver: External appearance of "nutmeg-liver" variety; on section the organ shows fatty and fibroid changes; vessels show some atheroma; weight, 1,690 grams. Spleen: Color, slate; on section shows normal splenic pulp; weight, 240 grams. Kidneys: Right kidney—pyramids plainly marked; line of demarcation between medulla and cortex well marked; size, normal; weight, 155 grams. Left kidney—capsule nonadherent; markings very distinct; size normal; weight, 170 grams. Pancreas: Normal in position and size; weight, 75 grams. Stomach: Position normal, containing small amount of mucus. Rugæ well marked. Mucous membrane slightly injected. Intestinal canal does not show anything worthy of note. Abdominal vessels normal. Bladder normal, containing small quantity of fluid. Urethra normal, presenting nothing of interest.

C. W. V.

Asthma spasmodic.

A. P.; age, 25; nativity, Norway; admitted to United States Marine Hospital, port of New York, August 4, 1899; died August 10, 1899.

Family history.—Negative.

Previous history.—Had gonorrhea and chancroids seven years ago. Smokes and drinks.

Present history.—Says he has been under treatment for asthma for two years past and that he has taken all kinds of medicine. At present appetite is poor, bowels costive; has headache, and general condition is poor. These symptoms have been present more or less during illness. His dyspnœa distressed him a great deal, but he continued at work until one week ago, when he had to give up. During the past two weeks condition has been much aggravated. Says two years ago had bronchitis, and that the asthma followed it. Extent or degree of his dyspnœa varies. At times he was not able to lie flat on his back, and again would have paroxysms, during which he would have to rush to window to get air. Has cough, with considerable muco-purulent expectoration.

Physical examination.—Inspection: Pupils react, tongue coated, dyspnœa extreme, respiratory efforts labored, has macular copper-colored spots on back, chest somewhat barrel shaped, degree of expansion small. Palpation: Fremitus marked over both lungs. Percussion: Hyperesonant note over both sides. Auscultation: Fine and large mucous râles heard over both lungs. Inspiratory sound loud and harsh. Expiration prolonged. Temperature, 38; pulse, 100; respiration, 22.

Treatment.—Given hypodermic of morphia 0.015 after admission and it was repeated during evening.

August 5.—Slept after hypodermic, but had paroxysms of extreme dyspnœa at different intervals during night. Appetite poor, bowels costive, normal quantity of urine passed in twenty-four hours. Potassa iodide, 1.32 t. i. d.; Morph sulph., 0.3; tr. belladonna tr. lobelia, a. a. 0.4 aqua ad q. s.—100. M. Sig., 5 c. c. every three hours. Milk diet; cathartics. Temperature, 37.8; pulse around 100; respiration, 24.

August 6.—Dyspnœa considerably relieved. Has severe cough and profuse muco-purulent expectoration. Bowels active. Temperature normal and pulse around 94. Ammonium chloride, ammonium carbonate, ammonium iodide, a. a. 7, aqua ad—100. M. Sig., 5 c. c. every four hours.

August 7.—Dyspnœa less this morning; coughing considerably; expectoration less. Given nitroglycerine 0.001 every three hours. Temperature, about normal; pulse, around 90.

August 8.—Dyspnœa much relieved, coughing considerably with muco-purulent expectoration. Appetite poor.

August 8, p. m.—General condition much worse. Somewhat delirious. Wanders about ward in a confused way; says he feels nervous.

August 9.—Coughing less than he did. Stop nitroglycerine. General condition unimproved this evening. Give sulfonal, 1.

August 10.—Delirium continues. Dyspnœa became marked during the night; pulse feeble; respiration slow and shallow; finger tips and lips cyanosed. Physical examination shows pulmonary œdema. Condition became worse rapidly, and he died at 5 a. m. August 10.

Necropsy (*ten hours after death*).—Body of male, apparently aged 30; body well nourished. Suggillation in dependent portions of body well marked. Rigor mortis well developed; pupils dilated. No external marks of violence. Brain case small; skullcap thick; sinuses, negative; membranes, congestive; brain, small; weight, 1,000; otherwise apparently normal. Incision from suprasternal notch to symphysis pubis. Small amount subcutaneous fat. Pericardium, smooth, glistening, and contains about 50 c. c. of clear yellowish fluid. Heart weighs 310; left ventricle firm, adherent in systole; muscles normal in thickness. Left lung markedly emphysematious; weighs

980; external services pigmented; lobes adherent to each other; crepitates and floats; upper lobe has two cavities about size of English walnut, containing broken-down caseous material; also, several caseating nodules present; middle lobe contains several caseating nodules; lower lobe shows considerable serous exudate on cut section; bronchial tubes thickened, contain mucus and pus. Left lung: With its fellow it extends over heart anteriorly, almost covering it. External surfaces markedly pigmented. Adherent to pleura. Weighs 1,260. Crepitates and floats. Cut section shows considerable frothy exudate. Bronchial walls are thickened, congested, and contains purulent exudate. Lower lobe solid, does not crepitate, œdematous, breaks down easily, and is reddish yellow in color. Pleura: Both sides show extensive adhesions throughout. Internal surfaces are thick and rough. Great vessels and nerve trunks normal. Diaphragm adherent to right lobe of liver. Omentum normal. Spleen: Large, weighs 450 grams, deeply congested, of soft and friable consistence. Right kidney: Position normal, weighs 185 grams, capsule nonadherent, color and consistency normal, markings distinct; malpigians pyramids pale, somewhat fatty in appearance. Left kidney: Position normal, weight 210 grams, capsule nonadherent, markings distinct, cortex somewhat pale and yellow in appearance, suprarenal capsules negative. Urinary bladder moderately distended with urine. Walls negative. Seminal vesicles negative. Prostate gland normal. Testicles: Had hydrocele in left tunica testinales. Penis and urethra normal. Rectum normal. Stomach normal. Duodenum normal. Gall ducts patent and normal. Liver: Adherent to diaphragm over right lobe, large, weighs 2,300 grams, right lobe large and has nutmeg appearance, gall bladder normal. Pancreas normal. Solar plexus not examined. Mesentery normal. Small and large intestines normal. Great vessels normal.

J. M. K.
G. W. S.

C. O., aged 24; nativity, Sweden; was admitted to the United States Marine Hospital, Baltimore, Md., March 6, 1900, and died March 8, 1900, at 9 p. m.

History.—Family history good. Present illness began two and one-half months ago with a lancinating pain over cardia and left side of chest, accompanied by cough with a tenacious, yellowish expectoration, tinged with blood. Patient has lost considerable flesh.

Physical examination.—Chest barrel-shaped, bulging more prominent on right side at the base; lateral diameter of chest increased; respirations quickened and labored, accessory muscles of respiration being actively brought into play; slight degree of cyanosis present. On palpation a distinct fremitus felt during inspiration over the entire chest; areas of dullness at apex of left lung and over right lung, especially in mammary region, with adjacent areas of hyper-resonance, on percussion. Moist râles, large and small, heard over the entire chest, with some pleuritic friction sounds over the left lung. Microscopical examination of the sputum showed the tubercle bacilli to be present. On admission the patient was suffering from dyspnœa; temperature, 36.6° at 10 a. m.; 38.2° at 6 p. m.; pulse, 104; respiration, 36. On the evening of March 7 temperature was 38.6°; pulse, 128; respiration, 32; cyanosis well marked; dyspnœa augmented; grew steadily worse, and died at 9 p. m. March 8, 1900.

Necropsy (*fourteen hours after death*).—Body fairly well nourished; rigor mortis well marked; post-mortem lividity in all dependent parts, especially buttocks and scrotum; face and neck dusky; pupils moderately dilated. Pericardial sac contained about 75 c. c. of a clear, amber-colored fluid; bands of adhesions between left pleura and parietal pericardium. Heart weighed 350 grams; walls normal; valves competent; right chamber of heart contained "chicken-fat clot," mixed with dark clotted blood. Pleural cavities empty; pleura adherent at apex of left lung; few fibrinous adhesions at base of left lung. Left lung weighed 900 grams; right lung, 1,200 grams; surface slightly pigmented; hard nodules of various sizes could be felt throughout the tissue of both lungs; on section the cut surface was studded with white and yellowish tubercles, especially grouped around the bronchioles, from which a yellow, mucopurulent exudate could be expressed; lower lobe of the right lung had the appearance of gray hepatization. Spleen normal; weight, 193 grams. Stomach contained 825 c. c. of fluid; vessels of the mucous membrane injected with dark venous blood, giving a mottled appearance; rugæ partially obliterated. Liver weighed 2,285 grams; congested; consistency more dense than normal. Intestines distended with gas. Kidneys normal; left weighed 159 grams; right, 152 grams. Calvarium removed, brain weighed 1,320 grams; dura mater adherent to brain along the longitudinal sinus; normal amount of fluid in the lateral ventricles.

M. W. G.
G. Y. P.

P. O.; aged 21 years; nativity, Norway; was admitted to the United States Marine Hospital, port of San Francisco, Cal., November 11, 1899, and died at 2 p. m. February 7, 1900.

History.—On entrance he complained of a cough which began about forty days previously, with abundant expectoration; pain on the left side of chest near the nipple, which later extended over lower part of the sternum; night sweats; slight fever; loss of weight and strength, and a very poor appetite. Bowels were regular. He sometimes vomited after a hard spell of coughing, and on one occasion ejected a round red mass about 8 inches in length, resembling a worm. Physical examination showed the patient to be poorly developed and nourished, with marked protrusion of the lower costal cartilages. On percussion both apices elicited a dull note, over which vocal fremitus was increased. The heart sounds were clear but rapid, the second sound being somewhat accentuated. Microscopic examination of the sputum showed the presence of tubercle bacilli in large numbers. On November 30 patient complained of diarrhea, having three to four stools daily with severe abdominal cramps, which were controlled by an opiate. On December 15 physical examination showed dullness over the entire chest, increased vocal fremitus, bronchial breathing and extensive moist râles; dyspnœa was marked, expectoration profuse, and rapid progressive emaciation noticed. January 25, 1900, pain in abdomen was severe, requiring the use of anodynes. The abdominal wall was retracted and the thighs flexed upon the trunk. At times he had difficulty in urinating. Patient failed rapidly from this time.

Necropsy (*twenty-three hours after death*).—Body is that of a young adult white male, greatly emaciated. Post-mortem rigidity slight; no post-mortem staining. Subcutaneous fat absorbed. On opening the abdomen a fetid order is noticeable. The bladder is distended with urine. The intestines are filled with gas. There are bands of adhesions extending over abdomen through the peritoneal cavity in all directions, resembling bass viol strings, several being attached to bladder wall. Omental fat is absent. The presence of lymphatic glands is indicated by large masses of tubercular tissue. The peritoneum is studded with tubercles. The anterior mediastinum shows pleuritic adhesions to the sternum. There are also adhesions over the entire surface of both lungs. The lungs themselves are degenerated tubercular masses and can not be removed intact. The pericardium is normal. The heart is small, weighing 165 grams; its valves are competent. In the aorta there is one small atheromatous plaque. The spleen weighs 165 grams and shows evidence of perisplenitis. The left kidney weighs 120 grams; its capsule strips easily. The pelvis is distended with urine; otherwise it is normal. The right kidney weighs 108 grams, and shows evidence of a fatty degeneration. Its pelvis also is distended with urine; the capsule strips easily; urethra admits sound to bladder. The intestines show tubercular ulcerations through their entire length, the ulcers in places almost extending through the outer coat. The liver weighs 1,065 grams, is adherent to the diaphragm and chest walls, and is pale. The pancreas weighs 50 grams, and is normal. The diaphragm is on a level with the fifth rib. The brain weighs 930 grams, and is wet; cerebrospinal fluid in excess.

M. E. S.
F. J. T.
J. M. G.

Microscopic report.—Tubercles. Scattered through the lung were large, irregular masses of cheesy material, consisting of cellular detritus and nuclear débris. These were surrounded by a fairly well-defined area which was infiltrated with lymphocytes. No giant cells were observed, and epithelial cells were scarce. The surrounding lung tissue was very hyperæmic, all the blood vessels being distended with blood.

The alveoli were filled with leucocytes, red blood corpuscles, with white and cheesy material.

F. J. T.
J. M. G.

E. G. (colored); age, 43 years; nativity, Kentucky; admitted to United States Marine Hospital, Evansville, Ind., December 28, 1899; died March 23, 1900.

History.—Patient had been gradually losing in weight the past few months previous to admission, also complained of pains in chest, with cough, expectoration, and night sweats. Physical examination revealed dullness in both apices, also in the subclavicular region of each side. The breathing is bronchial. Coarse râles are heard in ausculting both lungs. Microscopical examination of the sputum showed tubercle bacilli in large numbers. The treatment was expectant and supporting. The patient gradually declined and died from exhaustion.

Necropsy (*thirty hours after death*).—Body is that of a greatly emaciated adult colored male. Rigor mortis well marked. Calvarium removed. Brain substance somewhat softened, especially about the corpus callosum. Ventricles filled with fluid. Weight of brain, 1,200 grams. Thorax: Heart and pericardium normal. Heart weighs 480 grams. The lungs showed extensive pleural adhesions and the lobes are studded with tubercles. On section there are a few broken-down foci. Left lung weighs 1,400 grams. Right lung weighs 1,200 grams. The great vessels, nerve trunks, and diaphragm are apparently normal. Abdomen: Omentum is very thin and contains but little fat. Spleen small, bluish in color; weighs 100 grams. Kidneys normal; each weighs 240 grams. Suprarenal capsules normal. The liver on section presented a nutmeg appearance. A few mesentric glands were enlarged. The remaining organs, intestines, and great vessels were apparently normal. The spinal cord was not examined.

W. A. K.

L. B. (colored); seaman; age, 29; nativity, North Carolina; was admitted to the United States Marine Hospital, Cincinnati, Ohio, July 20, 1899; died September 7, 1899.

History.—Present illness began last March, when patient first noticed pain in chest, cough, night sweats, and general weakness. Was treated in this hospital for secondary syphilis seven years ago.

Family history.—Father died of phthisis; mother dead, cause unknown; one brother died of phthisis; three brothers living and well.

Physical examination.—Body very poorly nourished; emaciation extreme; clavicular spaces decidedly marked. Right lung: Defective expansion at apex; marked dullness over apex; vocal and tactile fremitus increased; broncho-vesicular breathing best heard posteriorly at base; no râles elicited. Left lung: Expansion defective; slight dullness over apex; broncho-vesicular breathing. Sputum showed bacilli in large numbers. Temperature 38.4. Patient showed little improvement and gradually grew weaker. The looseness of the bowels was the most troublesome symptom. Died September 7, 6.45 p. m.

Necropsy (*fifteen hours after death*).—Body that of an extremely emaciated colored man. Rigor mortis present. Brain and its membranes normal; weight 1,241 grams. Chest: Right pleura adherent to chest wall throughout; right lung broken down, containing three large cavities; weight 450 grams; left pleura slightly adherent to chest wall posteriorly; left lung covered with tubercles and contained several caseous masses; weight 540 grams. Heart: Pericardium contained about 150 c. c. of fluid; heart normal; valves competent; weight 300 grams. Abdomen: Liver and spleen normal apparently; weights, 1,080 grams and 120 grams, respectively; peritoneum found thickened and fairly studded with tubercles; mesenteric glands enlarged; kidneys normal; right 156; left 180; bladder empty.

H. S.
J. W. S.

Acute pulmonary tuberculosis and tubercles in liver, spleen, kidney, etc.

S. M. (negro); age, 36; nativity, North Carolina; admitted to the United States Marine Hospital, Baltimore, Md., November 28, 1899.

Family history.—Good so far as known.

Personal history.—About three months ago a slight cough developed, which was associated with some expectoration; was most troublesome in the early morning and was attended with much pain in the right side during deep inspiration. His condition grew worse daily; his abdomen became swollen and painful, and he was compelled to seek hospital relief. Upon admission to hospital his facial expression indicated pain and suffering; his pulse was rapid and weak; temperature 39° C., and he complained of pain in the right side and abdomen, also of constipation.

Physical examination.—Emaciation marked. There is a small enlarged gland in the axilla, abdomen painful and distended with gas; percussion gives dullness over both lungs; auscultation revealed some bronchial breathing general in character, also moist râles at the base of the right lung; fine crepitant râles and crackling sounds were heard at the bases of the lungs anteriorly and posteriorly. Microscopical examination of the sputum showed the presence of tubercle bacilli.

Treatment.—The patient was placed in the ward set aside for tuberculous cases. Creosote, cod-liver oil, and malt extract were administered. Warm fomentations were applied to the abdomen and opiates given to control the pain. The diet consisted of selected, easily digested articles, such as oysters, eggs, milk, and rare beef. Weakness and emaciation increased steadily and kept the patient confined in bed. Whisky, in the form of eggnog and milk punch, was administered, and strychnia sulphate given hypodermically as indicated. Death occurred December 10, 1899, at 2.30 p. m.

Necropsy (*twenty-one hours after death*).—Body that of a negro of slight frame and very poorly nourished. Post-mortem rigidity moderate. Pericardial sac contains about 30 c. c. of clear, thin, yellowish fluid, but seemed otherwise normal. The heart is small, its tissue pale and soft; weight, 200 grams. The right auricle contains a chicken-fat clot about as large as an average-sized hen's egg. The heart valves are competent. The left pleural cavity is obliterated by adhesions which bind firmly together the corresponding lung pleura and diaphragm. The left lung weighs 480 grams and is filled throughout with tubercle. The right pleural cavity contained 250 c. c. of serosanguinous fluid. The right lung, right pleura, and diaphragm are adherent. The right lung is infiltrated with purulent material, and is filled with tubercles; weight, 620 grams. The liver is adherent to the diaphragm, weighs 1,500 grams, and contains tubercles scattered through it. The left kidney weighs 125 grams; its capsule separates readily; its cortex is pale and contains a few scattered tubercles. The right kidney weighs 145 grams and presents much the same appearance as the left. The spleen weighs 400 grams; its substance is of a deep maroon color and contains numerous tubercles. The upper surface of the spleen was adherent to the diaphragm. The calvarium is exceedingly thin. The membranes of the brain are anæmic and somewhat œdematous. The lateral ventricles contain about 15 c. c. of thin straw-colored fluid. The brain weighs 1,260 grams and is slightly anæmic. The peritoneum is firmly adherent to the omentum and intestines, binding them into an inseparable mass infiltrated with tubercles.

T. B. P.
G. P.

General miliary tuberculosis.

G. W. T.; admitted to Marine Hospital, Baltimore, Md., on July 17, 1899, with diagnosis of valvular disease of the heart and phthisis; died September 18, 1899.

History.—Was treated in this hospital from March 23, 1899, to June 27, 1899, for inflammation of connective tissue of face, and discharged recovered except for great weakness which was noticed on slight exertion. After leaving hospital he contracted a cough, and grew weaker and weaker until unable to work. He was readmitted on July 17, 1899, with the following symptoms: A constant, harassing cough, with copious, thick, tenacious, yellow expectoration, in which tubercle bacilli were found in great numbers. Temperature, 39.6; pulse, fast, weak, and irregular; feet and ankles swollen, pit on pressure; bowels constipated.

Physical signs.—Inspection: Clavicles prominent and intercostal spaces retracted; dyspnœa, accessory muscles of respiration being brought into use; apex beat of heart to left and lower than normal. Palpation: Skin hot and dry; apex beat diffuse. Percussion: Area of heart dullness increased, extending farther to left and below; dullness over both lungs. Auscultation: Bronchial breathing very pronounced over both lungs; broncophony; moist râles abundant; a diastolic murmer heard at apex of heart. Examination of urine shows an abundance of albumin. Under treatment the patient improved for a time, and then got steadily weaker until the end.

Necropsy (*performed nine hours after death*).—Body about 5 feet 9 inches in height. Emaciation extreme. Rigor mortis slight. No cadaveric lividity. On abdominal section abdominal muscles very thin, and no subcutaneous fat. Spleen: Weight, 105 grams; dark in color; consistency about normal; surface studded with small, white elevations about one line in length; nothing abnormal noticeable on cut surface. Microscopical examination: Numerous areas containing giant cells scattered about the splenic substance. These tubercles were very small, and the center of some showed evidence of degeneration, the nuclei taking the stain poorly or not at all. Left kidney: Weight, 203 grams; very large, regular in outline, pale, decreased in consistency, capsule not adherent; on section a large cyst containing about 60 c. c. of clear fluid was cut into; cortex and medulla pale and encroached upon by cyst; malphigian bodies not prominent. Right kidney: Weight, 140 grams; smaller than left kidney, but containing no cyst; otherwise resembling right. Microscopical examination: In places the nuclei of the cells lining the convoluted tubules take the stain poorly or are absent and the tubules filled with a hyaline material. The glomeruli also show evidence of degenerative change, some of them being entirely replaced by amyloid material. There is also an intertubular round cell infiltration and some overgrowth of connective tissue around the blood vessels. No evidence of tuberculosis. Intestines: Clay colored, coats thinned, mucous membrane smooth and shining. Within a foot of the ileocecal valve the walls were thickened, the mucous membrane rough, and the vessels markedly injected. No ulcers present. Mesenteric glands much enlarged, some twice the size of a large pea. The microscope showed the gland examined to be tubercular throughout. The center was made up of a caseous mass and surrounding this a number of giant cells in more or less advanced stages of degeneration. At the periphery was a thin zone of round cells. Stomach normal. Pancreas: Weight, 80 grams; normal macroscopically and microscopically. Liver: Weight, 1,200 grams; congested; somewhat increased in consistency; nothing noticeable on cut surface. Gall bladder full and duct patulous. Microscopical examination of liver shows the presence of a number of areas of round cells, most of them containing giant cells, scattered about among the liver cells. Some of these miliary tubercles are beginning to undergo degeneration. There is also an increase in the interlobular connective. The hepatic cells stain well. Pericardium much thickened, of a grayish-white color, and covered with numerous little villous projections, which give it a very rough appearance. Pericardial sac contains an excess of bloody fluid. The microscope shows the thickening to be due to a large accumulation of round cells with some tendency to organization. Giant cells are plentiful and areas of caseous degeneration may be seen. Heart: Weight, 350 grams; light colored; some increase in size; ventricles contracted and contain white clots which extend some distance into large vessels; valves normal, with the exception of a very few small areas of calcification on edge of aortic valves. Microscope shows striations absent, slight increase of connective tissue between fibers, and a deposition of yellow granules in the fibers around the poles of the nuclei. Lungs: The right lung was closely adherent to the chest walls and was extensively involved in the tubercular process. All through it presented evidence of caseation, liquefaction, necrosis, and cavity formation. A microscopical examination was not made. The left lung was not so far advanced, but was riddled with little hard masses about the size of a millet seed. Microscopical examination proved these to be typical miliary tubercles. The intervening lung tissue was comparatively healthy except for slight dilatation of the air cells.

C. F.
G. P.

C. S.; age, 28 years; nativity, Switzerland; was admitted to the United States Marine Hospital, port of San Francisco, Cal., February 4, 1899, and died August 21, 1899.

History.—The present illness dates from a cold contracted six months ago, since which time cough, with expectoration of thick, viscid sputum, gradually increasing emaciation and weakness, night sweats, dyspnœa on exertion and sometimes on lying down, also constant elevation of temperature, have been prominent symptoms. Physical signs were dullness over the apices of the lungs extending below the second rib; loud amphoric breathing heard over the entire right lung, also large and small mucous râles; râles were also heard over the left lung. Voice sounds were transmitted loudly to the right lung. On April 17, 1899, further examination showed increased area of dullness on percussion over the apices of the lungs, while auscultation revealed numerous bubbling râles over the apex of the left lung, also both bubbling and subcrepitant râles posteriorly in the scapular region of both sides. The expiratory murmur was prolonged over the superior lobe of the right lung, and there were bronchial breathing and numerous râles. Signs of cavity formation in the apex of the left lung were prominent. May 17, 1899, there was some bloody expectoration. August 13, about 5 p. m., the patient had an attack of hæmoptysis and lost about 500 c. c. of blood. The patient's temperature ranged between 36° C. in the morning and 39° C. in the evening, and he continued to grow weaker daily, with all evidences of septicæmia, due to the suppurative processes in the lungs, and finally succumbed at 2.30 p. m., August 21, 1899.

The usual hygienic and supportive measures were instituted throughout the management of the case. The medicinal treatment consisted in the administration of creosote, ichthyol, nux vomica, and Fowler's solution of arsenic, hypodermatic administration of vaseline, and inhalation of formol, 5 per cent spray. Occasionally an antipyretic was given, and when the hemorrhage came on turpentine and ergot were given, followed by subcutaneous administration of normal salt solution. A full diet was constantly urged.

Necropsy (*twenty-three hours after death*).—Body that of a much emaciated adult white male. Rigor mortis well marked. General view of abdominal cavity shows no abnormality. Left pleural cavity empty. Moderately firm adhesions exist at the apex; otherwise free. Right pleural cavity contains no fluid. There are adhesions somewhat external to the apex and at the base externally, the apex itself being free. Pericardial sac contains a moderate amount of serous fluid. The pericardium presents a normal appearance, save that the parietal portion, where it is in relation with the ascending aorta, shows a few hard glistening white nodules, perhaps tubercular. The heart weighs 280 grams. The right auricle is extended. On opening it is found to contain a large ante-mortem clot. The right ventricle contains a small, very firmly adherent ante-mortem clot. The left auricle is contracted and contains a small post-mortem clot. The left ventricle contains a small, firm, adherent ante-mortem clot. The heart substance is extremely flabby and is apparently the seat of an unusual degree of fatty degeneration. The anterior wall of the right ventricle is apparently largely composed of fatty tissue. The mitral, tricuspid, and pulmonary valves are normal. The leaflets of the aortic valve are slightly thickened and opaque, but seemingly competent. The ascending aorta shows a number of small atheromatous patches. The left lung weighs 970 grams. The lobes are agglutinated by adhesions. The apex of the lung is entirely occupied by a cavity about the size of a large orange; its walls are for the most part composed of the pleura only. It contains a considerable quantity of grumous fluid resembling anchovy sauce. The remaining portion of the lung is studded, save the anterior border (where it is emphysematous), with tubercles, almost all of which are far advanced in caseation and many are already broken down, forming small cavities. Here and there is evidence of a broncho-pneumonia; but for the most part the lung tissue between the tubercles float. The peribronchial glands are pigmented, apparently not caseate, but much enlarged. The right lung weighs 870 grams. It is much less involved than the left. It is markedly emphysematous, particularly along the right border and base. It contains no cavities, but numerous caseated tubercles are scattered through it from apex to base. The spleen weighs 180 grams. The capsule is pale, smooth, and nonadherent. The splenic substance is rather pale in color and of firmer consistence than normal. It does not give the amyloid reaction with iodine. The left adrenal is apparently normal. The left kidney weighs 155 grams, somewhat pale, but otherwise normal. The right adrenal is apparently normal. The right kidney weighs 140 grams and resembles the left. The liver weighs 1,975 grams and, with the stomach and pancreas, is normal. The brain weighs 1,327 grams. The membranes, sinuses, and vessels are apparently normal.

T. B. P.
J. M. G.

Microscopical report.—Lung: Characteristic lesions of tubercle. Tubercle bacilli demonstrated in section by Gabbet's method.

D. M.

Tuberculosis, right lung.

P. D.; aged 60 years; nativity, Ireland. Admitted to United States Marine Hospital (Stapleton), port of New York, N. Y., May 22, 1900, and died May 22, 1900.

Family history.—Father and mother died when patient was quite young; cause of either death unknown.

Previous history.—Had venereal disease when a young man; no syphilis; had fever and ague about ten years ago; says he had chronic Bright's disease in 1898, and has been in this hospital for above disease three times, last time from February 1 to March 31, 1900. Left hospital, feeling very much improved, and has been doing light work since. Chews, drinks, and smokes.

Present illness.—Chief complaint, shortness of breath and bad cold. Felt very well until last Saturday, when he got soaking wet and caught a severe cold; coughs considerably; expectoration scanty, white and frothy; took several drinks; is quite short of breath; complains of no particular pain.

Examination.—General appearance bad; dissipated; color of face dark red, presenting very much of a cyanosed appearance; respirations are shallow, labored, and quite fast. On admission respiration 52, pulse 80, temperature 38.8; tongue slightly coated white. Auscultation: Heart irregular, but can detect no murmur; generally over whole surface of lungs are heard moist râles. Palpation: Lower edge of liver palpable; no abdominal tenderness. Percussion: No marked dullness over lungs; area of liver dullness increased.

Treatment: ℞. Pulvis Doveri—.1. Sig. At once. ℞. Magnesia sulph.—25. Sig. At once. 6 p. m.: General condition of patient about the same; is sleeping; temperature and pulse the same as on admission, but respirations down to 44, and continue shallow. ℞. Strychnia sulph.—.002 given hypodermatically every three hours.

Patient gradually grew worse and died at 7.35 p. m.

Necropsy (*sixteen hours after death*).—Rigor mortis well developed; body that of a male, apparently 60 years old; weight about 180 pounds; first and second toes of right foot missing. Lividity of dependent portions of body; no œdema of ankles; cornea glazed; pupils not dilated; considerable subcutaneous fat; skeletal muscles normal; sternum normal; remains thymus gland absent; pericardium smooth, glistening, and contains 25 c. c. of clear serum. Heart: Considerably enlarged; weight, 600 grams; all cavities contain post-mortem clot; myocardium friable; walls of left ventricle very thick; aortic valve contains calcareous deposits, but is competent; tricuspid the same; the other valves competent. Left pleura adherent to chest wall and pericardium. Left lung: Weight, 850 grams; crepitates, floats, does not cut easily, congested, especially in lower lobe; œdematous, especially in upper lobe. Lower lobe friable; lobes adherent to each other. Right pleura: Not so generally adherent to chest wall as on left side; adherent to diaphragm. Right lung: Upper lobe crepitates, and lower crepitates in few places; upper lobe contains two tubercular cavities; œdematous; lower lobe much congested. Weight, 1,150 grams. Post mediastinal glands enlarged. Omentum, normal. Spleen: Weight, 170 grams; cut surface has fatty appearance; capsule, normal. Left kidney: Weight, 215 grams; capsule, non adherent; organ pale on cut surface, tears easily, markings distinct; cyst on surface; cortex and medulla enlarged; granular fatty changes in cortex; fibrous changes in medulla. Right kidney: Weight, 165 grams; same as left except no cyst; bladder, normal; genital organs, normal; stomach, normal; duodenum, normal. Liver: Weight, 1,850 grams; external surface grooved by the ribs; pale on cut surface; marked fatty changes; pancreas normal.

H. E. G.
G. W. S.

Kidneys and testes.

W. W.; aged 30; nativity, Tennessee; admitted to United States Marine Hospital, Memphis, Tenn., May 7, 1900; died May 26, 1900.

History.—Patient stated his urine had been thick and of a whitish color for about four months. He attributed this condition to the passage of an instrument into the bladder, as it appeared about a week afterwards. Said also he had had a severe diarrhea for three weeks previous to coming to hospital, which was accompanied with high fever and delirium. Examination on admission showed the patient to be greatly emaciated and quite weak; dullness and bronchial breathing over apex of left lung; tenderness on deep pressure in lumbar region on either side of middle line; left testicle greatly enlarged and softened; right small and firmer than left; slight hydrocele on right side; urine was of a greenish white color and had a very offensive odor; reaction strongly alkaline; small quantity of albumin present. Microscopical examination showed large numbers of the micrococus ureæ, mucus, and pus cells and crystals of the triple phosphate, but no tubercle bacilli or tube casts. The temperature curve was irregular, ranging between 36° C. and 39.5° C. The treatment consisted in daily irrigation of bladder with antiseptic solutions and measures to control the diarrhea combined with general tonic treatment, but patient declined rapidly, and died about three weeks after his admission to hospital.

Necropsy (*eight hours after death*).—Body greatly emaciated; rigor mortis slight; upon dissecting back the skin and muscles on front of chest there is seen a hole in the fourth costal cartilage near the costal extremity of same; the hole was about 1.5 cm. in diameter; the edges were smooth and a membrane covered it posteriorly. It was evidently a malformation, as there was no scar in the overlying integument; pericardium contained the normal amount of fluid; heart weighed 212 grams and was normal; left lung consolidated at apex and small nodules were disseminated throughout the whole lung; right pleura adherent posteriorly; right lung also contained numerous tubercles; weight of left lung, 235 grams; right, 330; liver weighed 1,530 grams and appeared normal. Left kidney was nothing but a large sac filled with thick pus, the odor of which was not offensive; hardly any trace of normal kidney structure could be detected; weight, 440 grams; right kidney weighed 240 grams; pelvis full of pus, but rest of kidney appeared normal; mesentery glands enlarged; pancreas weighed 55 grams and was normal; spleen normal, weight, 160 grams; stomach and intestines showed evidence of chronic congestion, but were otherwise normal; bladder contained several ounces of offensive pus; mucous membrane roughened and thickened; left testicle contained about 50 c. c. of thick, yellowish, cheesy material and normal tissue almost completely destroyed; small quantity of thin straw-colored fluid in right tunica vaginalis; right testicle affected in same manner as left, but not so extensively; brain weighed 1,300 grams and was normal.

D. E. R.

Pulmonary hemorrhage.

W. L.; aged 27 years; nativity, Iowa; admitted to marine ward, St. Vincent's Hospital, Portland, Oreg., May 21, 1900, and died on same date two hours after admission.

History.—No satisfactory history obtainable. Had had a cough for several months, and of late sputum had been blood-tinged, but patient had not sought medical advice. While at work on day of admission was seized with severe attack of hemoptysis; was removed to hospital in semicomatose condition; the profuse hemorrhage was not affected by treatment, and patient died two hours after arrival at hospital.

Necropsy (*fifteen hours after death*).—Body of a well-nourished adult male. Rigor mortis marked. Livor mortis slight. About mouth and issuing from both nares is observed clotted blood. Both pleural cavities are largely obliterated by moderately firm adhesions. The heart is slightly hypertrophied, but otherwise pericardium and contents are normal. Careful examination of the aorta and the large trunks arising therefrom shows no abnormality. The intima of these vessels exhibits no evidence of atheroma. In the operation of removing left lung a large quantity of bloody fluid escapes from the cut bronchus. This lung is quite distended and emphysematous. At the apex posteriorly is noted a depression which on section is found to correspond to a cavity equal in size to a large walnut. This cavity contains some bloody fluid; and apparently the fatal hemorrhage arose from one of the vessels of its wall, though the precise source of bleeding is not clearly determined. Scattered throughout the upper lobe are numerous small discrete tubercles at various stages of growth. The right lung closely resembles its fellow, the upper lobe containing a number of tubercles, but no cavity. The peri-bronchial glands are enlarged. The left adrenal is enlarged and nodular. The gall bladder is shrunken and empty. The spleen is swollen and the splenic pulp soft. Other organs examined, including kidneys, liver, pancreas, stomach, and brain, show no abnormality of interest.

D. M.

M. Q.; aged 19 years; nativity, Japan; admitted to United States Marine Hospital, port of New York (Stapleton), September 23, 1899; died November 1, 1899.

Family history.—Mother died of consumption. Sister died from hemorrhage. Patient himself had a bad cold when 9 years of age.

Present illness began one month ago, when he caught cold at sea, coughed and first raised white, then yellowish, sputum. Cough was most troublesome in the morning. Expectoration was bloody at times, night sweats occurred, and he has lost flesh. Percussion reveals dullness over upper lobe, right side most marked immediately below clavicle. There is also dullness over left apex posteriorly. Auscultation: Prolonged expiration and increased vocal fremitus found on right side, infraclavicular region and tubular breathing at both apices. During the first ten days in hospital patient got along fairly well. The third and fourth day he had high fever, temperature 40°; sponge baths were given, and on the 27th temperature declined to normal, and after that it seldom rose 1°.

October 2.—Patient up and about, but has troublesome cough and some pain in chest.

October 20.—Had profuse hemorrhage from nose, which recurred at intervals during a period of several days, and he became very weak. Medication was continued with nourishing food, sherry, and eggs, and on October 29 he felt much better and was able to sit up.

November 1 (*a. m.*).—Petechial spots were noticed on extremities, most marked at ankles and wrists, also on flexor surfaces at elbows, and there was some bleeding from nose and mouth. Feet swollen and œdematous, and at 10.15 a. m. hemorrhage from the bowels occurred, about 1,000 c. c. dark clotted blood being passed. Patient failed rapidly, and died at 2.10 p. m. November 1, 1899.

Necropsy (*twenty-six hours after death*).—Body that of a male fairly well nourished and with slight suggillations in dependent portions of body. A small patch also is found on abdomen in right hypochondriac region, and on upper extremities, flexor surface; clotted blood in mouth and nose. Calvarium about normal thickness. Brain case, fair size; negative. Sinuses and vessels of membranes contain small amount of blood. Membranes are pale and anæmic in appearance. Brain weighs 1,320 grams. External surface markedly anæmic; cut section shows brain substance markedly anæmic. Incision from supraclavicular notch to symphysis pubis showed subcutaneous fat small in amount. Anterior mediastinum: Normal. Remains of Thymus gland negative. Heart: 170 grams; small and firmly contracted; floats in pericardial fluid. Right ventricle contains a small amount of dark, fluid blood. Left ventricle contracted and empty. Pulmonary veins contain dark, fluid blood. Muscle of heart is pale and anæmic in appearance. Aortic and mitral openings negative. Tricuspid valves thickened around edges. Pulmonary valves normal. Pericardium smooth, shining in appearance; no adhesions. Cavity contained about 200 c. c. clear, straw-colored fluid. Left lung adherent around apex and upper lobe; weighs 625 grams. External surface pigmented. Lower lobes congested and œdematous; floats and crepitates; outer surface of upper lobe shows a depression about size of end of thumb and contains a cavity holding purulent deposit. Rest of lung one mass of tubercles. Right lung: 750 grams. Adherent about apex to pleura, also at base to diaphragm. External surface is pigmented. Floats and crepitates. Dependent portions congested. Upper lobe contains a cavity about size of hazelnut, with purulent débris. Rest of lung shows numerous tubercles. Posterior portion of lower lobe shows another cavity containing pus. Great vessels and nerve trunks of thorax normal. Diaphragm extends to between fourth and fifth ribs; upper surface is rough where it is adherent to right lung. Omentum has dirty, reddish-gray appearance with numerous petechial hemorrhages into substance. Spleen: Slightly enlarged, especially in longer diameter; weighs 220 grams. Cut section shows slight anæmia; amount of splenic pulp about normal. Left kidney: 160 grams. Normal position; capsule non-adherent. External surface is pale and anæmic. Markings almost obliterated. Medullary and cortical substance is pale, yellowish, and shows anæmia. Right kidney: 145 grams. Smaller than left kidney; normal in position; nonadherent. Cut section shows same changes as in right, and cuts hard. Bladder normal. Prostate normal. Seminal vessels negative. Uretha and penis normal. Testicles small, otherwise negative. Rectum: Mucous membrane is congested and contains dark, clotted blood. Duodenum contains dark, clotted blood, and first portion is studded with small ulcers. Stomach: Mucous membrane lined with petechial hemorrhages, clotted dark blood found around Pylorus. Gall duct patent. Pancreas normal. Liver: 1,370 grams; in normal position; cuts easily, but is anæmic; shows fatty change throughout. Mesentery is thickened and studded throughout with numerous tubercles. Retro-peritoneal glands thickened and tuberculous. Mesentric glands are the seat of extensive tuberculous degeneration. Large and small intestines are dark purplish in external appearance. Mucous membrane congested and shows numerous petechial hemorrhages into its substance; contains dark, fluid blood, also dark, clotted blood. Vessels of abdomen negative.

C. E. D. L.
G. W. S.

Tubercle of lungs.

M. N., aged 26 years; nativity, Norway; was admitted to the United States Marine Hospital, Boston, Mass., October 4, 1899; died December 14, 1899.

History.—During the past four months the patient has had several chills, pains in back, headache, and cough. On admission patient weak, anæmic, constipated; he coughs a little and there is considerable expectoration. Pulse rapid and weak, tongue slightly coated. Physical examination revealed an erythematous rash over chest and abdomen and papules on tongue; dullness over right apex and on auscultation tubular breathing. Increased vocal resonance, moist râles over right lung anteriorly. Tubercle bacilli present in sputum. On October 26 he complained of severe pain on right side of thorax and a more annoying cough. Such stimulants as strychnia, digitalis, and whisky were used in the treatment.

Necropsy (*eight hours after death*).—Patient much emaciated. Post-mortem lividity absent. Rigor mortis slightly marked. General nourishment poor. Pupils equally dilated. Pericardial sac free from adhesions, contains about 20 c. c. of straw-colored fluid. Heart weighs 200 grams, is collapsed, pale red in color, soft in consistence, is slightly fatty. "Chicken-fat" clot in both auricles which extends into the chordæ tendinæ. Valves are all competent and normal in appearance. The left ventricular wall is 2 cm. in thickness; the right ventricular wall is 1¼ cm. in thickness, muscular substance pale and anæmic. Aorta presents no evidences of arterio-sclerosis. Pleural cavities: Left is free from adhesions and contains a moderate amount of yellowish serum; right is obliterated by dense adhesions. Lungs: Left weighs 950 grams; external appearance mottled gray in color, free from adhesions; upper lobe hard to the touch, lower lobe crepitates on pressure. On section, upper lobe is reddish gray in color, cut surface shows small abscess cavities varying in size from 0.2 cm. to 1 cm. in diameter; lower lobe presents conditions similar to upper lobe, but not so marked. Right weighs 1,300 grams; externally it is reddish gray in color, free from adhesions, soft to the touch. On section, lung is found to be uniformly infiltrated, yellowish-gray in color, surface of section shows abscess cavities, varying in size from 0.2 cm. to 2 cm. throughout entire lung, and at apex of upper lobe a large abscess cavity containing 30 c. c. of purulent material. On squeezing purulent fluid oozes from the smaller bronchi. The lower lobe is more congested than the upper. Many tuberculous nodules are present throughout. Stomach slightly distended with fluids; on section, mucous membrane is gray in color. Peritoneum shining in appearance and mesenteric glands are enlarged. Small intestines normal; large intestines are normal except at head of cæcum, which shows a hemorrhagic area about 6 cm. in diameter, probably a beginning ulceration. Liver weighs 1,950 grams, is of a bluish-red color, moderately firm in consistence, and (except for evidences of passive congestion) normal in external and internal appearance. Gall bladder slightly distended with bile, ducts patulous. Pancreas is normal. Kidneys: Left, weighs 175 grams; color bluish red, capsule strips off readily; surface of section, pale red in color; cortex thickened, showing evidence of incipient parenchymatous change; right weighs 175 grams and presents characteristics similar to its fellow of the opposite side. Bladder urinary slightly distended and contains about 50 c. c. of urine; walls measure from 1.5 to 2 cm. in thickness. Urethra normal. Prostate normal. Suprarenal bodies: Right weighs 12 grams, left weighs 15 grams; both are normal. Spleen weighs 225 grams, slightly enlarged, firm to the touch; surface of section bright red in color. Membranes of brain normal. Brain weighs 1,270 grams; no tubercular deposits; normal in appearance.

F. I.

Intestines.

W. G.; age, 25 years; nativity, New York; was admitted to the United States Marine Hospital, port of San Francisco, Cal., March 21, 1900, and died April 12, 1900.

History.—Patient's mother died of tubercle at the age of 32 years. His father died of cancer at the age of 40. He has one brother and two sisters living and well. His present trouble began as a diarrhea a year ago. Following a trip to Manila, he had an attack of "dysentery" in June, 1899. He was treated in a local hospital in September, 1899. For the last five months he has had a cough with free expectoration, nausea, and occasional vomiting and diarrhea. He has lost 36 pounds in twelve months.

Physical examination.—Patient emaciated and pale. The chest is flat; clavicles prominent; defective expansion, especially below right clavicle. Vocal fremitus increased at right base. There was dullness at both apices and right base. Auscultation showed bronchial breathing, with râles over right apex posteriorly and left apex anteriorly. Heart accelerated in action; otherwise normal. Tubercle bacilli in abundance in sputum. Patient had been emaciating rapidly before admission to the hospital. Vomiting became troublesome and interfered with body nutrition. Expectoration was profuse for a time and then ceased. Diarrhea and pain in abdomen persistent; also insomnia. Patient wasted away and died of exhaustion. Temperature had ranged from 37° C. to 38.5° C.

Treatment.—Only symptomatic measures proved of any avail. Sulfonal and morphine were used for insomnia, the latter also for relief of pain. Tincture of nux vomica and diluted hydrochloric acid were given for stomach disturbance, with little avail. Bismuth subnitrate and Squibb's diarrhea mixture were administered for diarrhea.

Necropsy (*nine hours after death*).—Body that of a medium-sized young adult white male, fairly developed, but greatly emaciated. Rigor mortis and lividity absent. Chest: Adhesions in anterior mediastinum; very firm pleuritic adhesions laterally over each lung, reaching down to third ribs. Effusion of 300 c. c. straw-colored fluid in left pleural cavity and a corresponding amount in abdominal cavity. Pericardial fluid increased to three times its normal amount. Heart flabby; weight, 500 grams; atheromatous areas present in aorta; valves normal; white fibrinous clots in each ventricle, firmly adherent to walls and musculi pectinati. Upper lobe of left lung contains a large cavity; both superior lobes carnified, and there is present a solid area in right base. Adhesions to chest wall are so strong as to prevent removal of lung except piecemeal. Spleen enlarged, though its gross structure is apparently normal; weight, 177 grams. Weight of left kidney, 157 grams; right, 148 grams; both are pale and fatty; the cortical portion is much thickened; capsule nonadherent. Liver: Weight, 1,860 grams; enlarged, rather pale on section; fatty. Gall bladder partially filled with green fluid bile; duct patulous. All the mesenteric glands are greatly enlarged and indurated. Pancreas weighs 90 grams; very pale; otherwise normal. Ileum contains a chain of tubercular ulcers, extending in places to serous coat. Several perforations of bowel during manipulation for removal. Bladder partly filled with urine; normal. Sections of all affected organs preserved for microscopic study. Brain not examined.

F. J. T.
J. M. G.

Purulent pericarditis.

J. B.; age, 27; nativity, Alabama; admitted to United States Marine Hospital, Memphis, Tenn., December 25, 1899; died January 23, 1900.

History.—Patient on admission gave history of having been taken ill three days before his coming to hospital with a chill, followed by fever and cough, with some blood in sputum. He was greatly emaciated, but denied having been ill longer than a few days. Examination of chest revealed a lobar pneumonia, the entire right lung being consolidated. Temperature, 39; pulse, 110; respiration, 45. Patient was also suffering from a severe diarrhea, which weakened him greatly. Strychnine was freely given hypodermically, and five days after his admission to hospital the temperature fell to normal, and resolution of the consolidated lung ensued. The temperature remained normal, but the diarrhea continued, and the patient declined gradually, and died January 23, 1900.

Necropsy (*eighteen hours after death*).—Body is that of a male mulatto and is emaciated to an extreme degree. Rigor mortis and post-mortem discoloration are slight. An incision is made from chin to pubis, and on opening the abdominal cavity the spinal column is first seen, being in contact with the anterior abdominal wall. The pericardial sac filled with about 800 c. c. of purulent fluid. The inner surface of pericardium is covered by a yellowish, roughened membrane, and is adherent to the heart over a portion of left ventricle. The surface of heart presents a granular, yellowish appearance. Heart weighs 215 grams. The muscular substance is very pale. The valves are normal. Left lung weighs 260 grams and the right 440 grams. The lower lobes of both lungs are greatly congested, and hard nodules of various sizes are present in both lungs, but more numerous in right. Left pleuro is adherent over lower portion of chest wall and also to pericardium. Liver weighs 1,560 grams, is of a very dark red color, and blood oozes from the surface of cut section. Gall bladder is distended with about 25 c. c. of bile, which can be forced through the ducts by means of pressure on the gall bladder. Spleen weighs 140 grams; color of surface, light gray; capsule wrinkled and consistence very firm. Kidneys are both small and hard; capsules easily stripped off; surface has a mottled appearance; cut section has a pale color and vertical portion is thinner than normal. Right kidney weighs 115 grams, left 120. The mucous membrane of small intestines shows considerable congestion. The mucous membrane of large intestines presents throughout ulcers, most of which are small and have indurated edges. The ulceration is most pronounced in the cæcum, the mucous membrane of which is almost entirely destroyed. Mesenteric glands enlarged. Brain weighs 1,370 grams and is very pale, otherwise normal; a considerable quantity of watery fluid escapes on removing the dura mater from brain.

D. E. R.

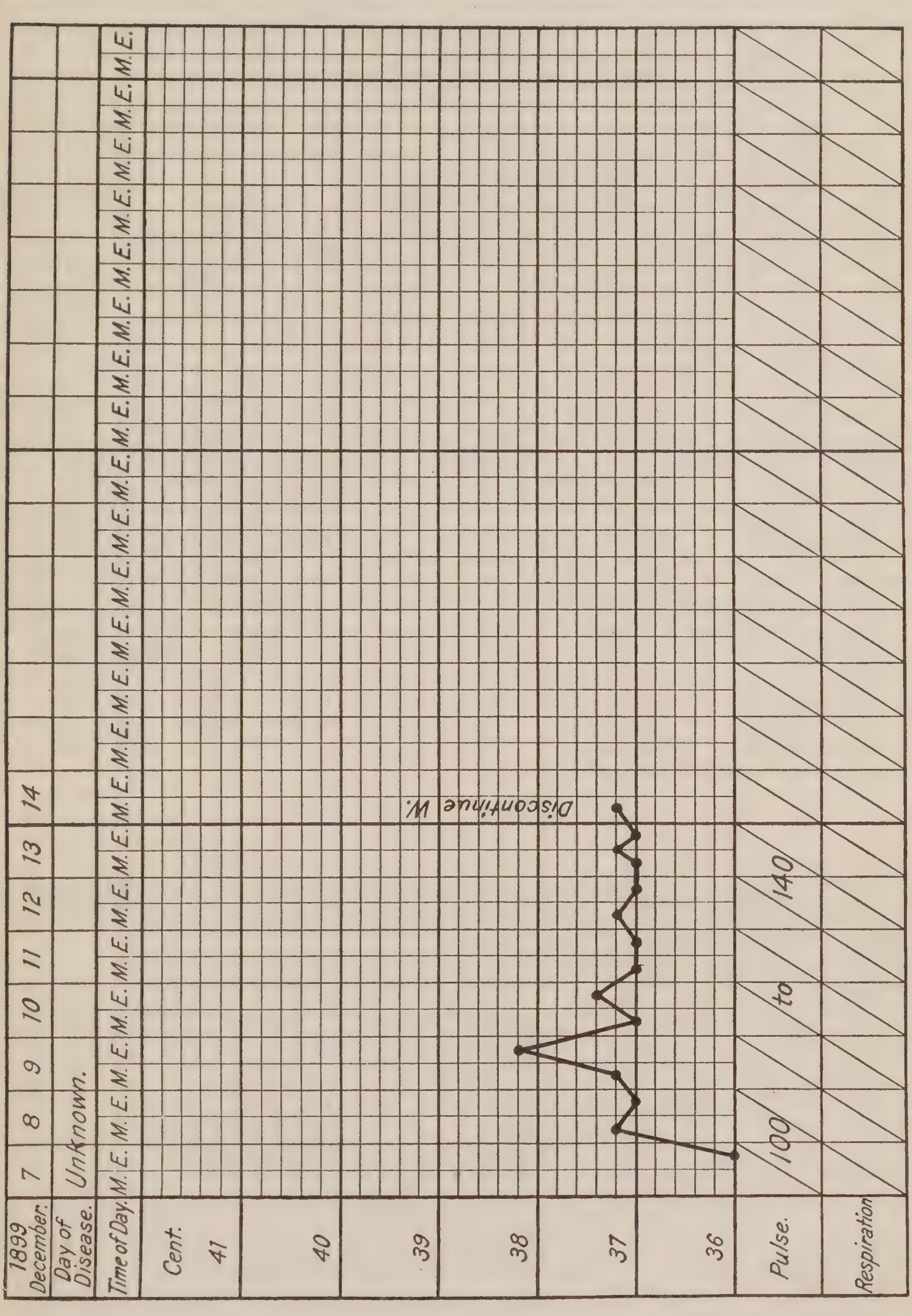
F. F.; aged 38 years; nativity, Guam; was admitted to the United States Marine Hospital, port of San Francisco, Cal., November 3, and died December 7, 1899.

History.—The patient's family and previous history were not obtainable because of his poor knowledge of English; but he had apparently been ill several months before entering this hospital. On admission he complained of cough, which caused pain beneath the sternum, loss of appetite, and occasional feelings of alternate chilliness and heat. Further than this the patient could not give his symptoms.

Physical examination.—He was a very small, poorly developed, and extremely emaciated mulatto. The thorax moved considerably more on the left than on right side of chest. Signs of a small cavity were present beneath the left clavicle and of consolidation beneath right clavicle and at apex of right lung. The apex beat of the heart was in the fourth interspace 3 cm. to the right of the mammary line. The heart sounds were rapid, but were quite clear. Marked atrophy of the right testicle was noted; that organ being about the size of a pea, and quite hard.

On November 24 the difference in motion between the two sides of the chest had become still more marked, and the whole right lung area, posteriorly, was dull on percussion. Bronchial breathing was also noted in that region. His pulse was 140, and during his stay in the hospital was constantly over 100; but he had no fever. Incontinence of urine began on this date; and pain over region of the liver, and sore throat were also complained of, both of which continued until death. His sputum, though frequently examined, never yielded bacilli of tuberculosis; but they were found in large numbers in the urine. Patient grew progressively weaker, and was in a semi stupor for the ten days preceding death, which occurred at 10.40 a. m. December 7, 1899. Treatment consisted of stimulants, with opium internally, and local applications for the relief of pain. Nourishing liquid foods were given at regular intervals.

Necropsy (*three hours after death*).—The body is that of a very small, poorly developed, extremely emaciated Malay male. Rigor mortis is not present. The abdominal wall is extremely thin, containing almost no fat. The parietal peritoneum is apparently normal. There is no fluid in the abdomen. The intestines are slightly distended with gas. The arch of the diaphragm is on a level with the fifth rib. The anterior mediastinal glands are caseous, matted together, and partially broken down.



[United States Marine Hospital, port of San Francisco, Cal. Name, F. F.; age, 38; disease, tubercle.

The anterior portion of the pericardium, externally, is apparently normal. There are five bands of adhesion, apparently old, between the pericardium and left lung. Between the pericardium and right lung is a solid mass of adhesion, evidently old. The pericardium contained 10 c. c. of clear fluid. Both its visceral and parietal layers are very slightly injected, but otherwise normal. The heart is very small, shows evidence of fatty degeneration, and is in systole. It weighs 162 grams. The right auricle contains both fluid and clotted blood. The left auricle contains a very small amount of fluid blood. Both ventricles are empty. The heart valves are all apparently normal. At the beginning of the aorta are two small patches of beginning atheroma. The left lung weighs 240 grams, and is adherent by bands to the thoracic wall anteriorly and posteriorly, and very markedly adherent at the apex. The lung is crepitant, but tubercle can be felt scattered over its entire area. On section it gives typical evidence of extensive tubercle, the tubercles being of a cooked-sago appearance, and uniformly scattered thickly throughout the entire lung. At the apex is a cavity 1 cm. in diameter. The right lung is adherent over its entire surface, and so friable that it breaks in the hand on attempt at removal. Pieces removed are thickly studded with tubercles similar in appearance to those in the left lung. The spleen weighs 120 grams. Beneath its capsule are numerous tubercles scattered over its entire surface. Its capsule strips rather easily, leaving a granular surface. The substance is fairly firm, but shows immense numbers of tubercle on cut section. The left kidney weighs 165 grams. The capsule strips easily, leaving a very pale surface, studded with numerous tubercles and marked with injection of the small vessels. On its anterior surface is a semiglobular tumor, 2 cm. in diameter. Perpendicular section of the kidney reveals general tubercular infiltration. Section of the tumor showed it to be a large tubercular mass extending to the pelvis of the kidney, and caseous at its center. The right kidney is very much increased in size, being larger than the left, and is lobulated. It fluctuates. The ureter cut across, a large amount of tubercular pus flows from the kidney, which on section is seen to be the sac of a tubercular abscess, the whole kidney substance being destroyed. Both ureters were enlarged, the right more so than the left. They are the seat of extensive tubercular process, their entire length being caseous internally. The bladder is much contracted and presents tubercular ulceration on its inner surface. The seminal vesicles and prostate gland are matted together and broken down, forming a tubercular abscess. The urethra is tubercular for 2 cm. below the prostate gland. The right testicle and epididymis show evidence of an old tubercular process, being much shriveled and hard. The liver weighs 950 grams, and its surface is studded with tubercle, on section showing general tubercle. The stomach is very small, and its walls are thickened. The mucous membrane is thrown into heavy red ridges, between which the mucous membrane is pale. There is general enlargement of the mesenteric and retroperitoneal glands. The small intestine is apparently normal to within 30 cm. of the ileocæcal valve. Between that point and the valve are several tubercular ulcers of small size. The caocum contains a number of large tubercular ulcers. The colon contains large, well-advanced tubercular ulcers along its entire course. The brain weighs 1,267 grams, and it and its membranes are normal in appearance.

W. M. W.
H. A. S.
J. M. G.

W. K.; colored seaman; aged 29; nativity, Tennessee; was admitted to the United States Marine Hospital April 24, 1899, suffering with cough, night sweats, dysponœa, and great weakness. Family history negative.

Physical examination.—Chest fairly well developed, depressions in supra and infra clavicular spaces, drooping of right shoulder, expansion lessened on both sides. Lungs: Percussion elicits dullness over right apex, with slight over left; bronchial breathing on right side; increase of vocal fremitus on right side. Temperature 39.2, heart 110. Bacilli found in large numbers. Patient showed very little, if any, improvement; gradually grew weaker; emaciation, cough, and night sweats more pronounced, and died October 23, 1899, at 3 a. m.

Necropsy (*twelve hours after death*).—Body that of an extremely emaciated colored man; rigor mortis present. Brain and its membranes normal; weight, 1,450 grams. Chest: Both lungs firmly adherent to chest wall throughout; right lung showed tubercular deposits at apex, otherwise in fairly healthy condition; weight, 420 grams; left lung completely broken down, and was one large cavity, scarcely any lung tissue being left, and very friable. Heart: Pericardium contained 200 c. c. of fluid; valves of heart competent; weight of heart, 240 grams. Mediastinal glands enlarged. Abdomen: Liver normal—1,210 grams; spleen normal—150 grams; mesenteric glands enlarged; kidneys normal; right, 160 grams; left, 180 grams. Bladder empty.

H. S.
J. W. S.

Tubercular Phthisis.

C. E.; white seaman; aged 25 years; nativity, West Virginia; admitted to the United States Marine Hospital, Cincinnati, Ohio, December 29, 1899; died January 10, 1900.

History.—On admission patient complained of cough, loss of voice, dysphagia, night sweats, and general weakness. Mother died of "stomach trouble;" father alive and well; three brothers dead, dying of consumption, typhoid, and measles, respectively; three living and well; two sisters dead, "consumption of the bowels," and typhoid. Patient says he was always fairly healthy until six months ago, when he contracted a heavy cold, which has never left him. About two months later, loss of voice, but not until two weeks ago was any soreness or difficulty in swallowing noticed. Night sweats quite profuse. Anorexia, and frequent vomiting after meals. Physical examination shows patient quite emaciated and anæmic. Chest poorly developed; right shoulder droops perceptibly; clavicular spaces very prominent; expansion very slight. Percussion elicits a cracked-pot sound over upper portion of right lung, marked dullness over left apex. Auscultation: Loud moist rales distinctly heard over defective area on right side, tubular breathing upon left side. Vocal and tactile fremitus increased. Temperature shows decided rise every evening. Sputum: Bacilli found in large numbers. Examination of larynx reveals a thickened, infiltrated mucous membrane and ulceration easily outlined. Patient grew weaker rapidly, the dysphagia becoming so marked that nourishment and medicine per rectum and subcutaneously was required. Death from asthenia January 10, 1900.

Necropsy (seven hours after death).—Body that of an extremely emaciated white man; rigor mortis present. Chest: Right lung found broken down, upon section fairly riddled with small cavities; at apex, medium-sized cavity found; no adhesions of pleura to chest wall; weight, 750 grams. Left lung showed tubercular deposits, especially at apex; weight, 938 grams. Larynx dissected out. Mucosa very much thickened and presenting scattered tubercles and grayish ulcers; considerable loss of substance from ulceration. Heart: Pericardium contained about 100 c. c. of fluid; heart normal; weight, 360 grams. Liver and spleen apparently normal; weights, 1,350 grams and 150 grams. Nothing abnormal about peritoneum or intestines. Kidneys normal; weight of each, 150 grams. Urinary bladder contained about 100 c. c. of normal-colored urine.

H. S.
J. M. E.

Tubercular Phthisis.

C. H.; negro; age, 23 years; nativity, South Carolina; admitted to United States Marine Hospital, Detroit, Mich., April 30, 1900; died, May 9, 1900.

History.—Patient states that he has always been well until two months ago, when he complained of severe cough, loss of appetite, night sweats, evening exacerbations of temperature. These symptoms grew rapidly worse until admission to hospital. Physical examinations showed exaggerated resonance of both lungs, moist whistling râles. Tubercle bacilli present in sputum in great numbers. Patient failed rapidly in spite of vigorous stimulant treatment and dieting, dying of asthenia on May 9.

Necropsg (eighteen hours after death).—Body greatly emaciated. Rigor mortis marked. Pupils dilated. Numerous scars on both knees. Calvarium removed in usual way—dura mater of normal appearance. Brain: Weight, 1,770 grams; no pathological findings. Thorax: Pericardial adhesions anteriorly and laterally, with pleura. Heart: Weight, 300 grams; right heart distended with clotted blood; valves and muscles normal. Lungs: Right, adhesions of pleura over entire anterior and lateral aspect; weight, 1,300 grams; section of lung shows extensive involvement of entire upper lobe; numerous cavities filled with purulent matter and extreme anthracocis. The lower lobes congested and show marked resistance to cutting. Left lung: Adhesions over entire pleura, especially diaphragmatic portion, a part of which had to be removed with lung; weight, 900 grams. Section reveals a condition similar to that in the right lung, both lobes being filled with cavities varying in size from a pea to a hazelnut and exuding on section a grayish white, foul-smelling fluid. Bronchial glands at root of lung much hypertrophied. Abdominal organs appeared normal. Liver: Weight, 1,500 grams. Kidneys: Right—weight, 140 grams; left—weight, 135 grams. Bladder, normal. Spleen, weight, 180 grams.

J. W. A.
J. G.

P. P.; aged 22 years; nativity, Norway; was admitted to the United States Marine Hospital, port of San Francisco, Cal., September 23, and died September 25, 1899, at 8.50 p. m.

History.—On admission the patient gave a history of cough, profuse expectoration, night sweats, dyspnœa, loss of weight, and weakness becoming more marked during the last month. On physical examination inspection showed the patient to be fairly well developed and nourished; the lips and finger tips were cyanotic; there were two marked depressions in the supraclavicular regions. On palpation the right side of the chest moved slightly more than the left. Vocal fremitus was increased over both lungs, especially over the right apex. On percussion a tympanitic note was elicited over both apices, the rest of the lungs being dull. On auscultation large moist bubbling râles were heard all over the chest. The breathing was bronchial. The area of heart dullness was increased, the apex beat invisible and the heart sounds distant. The pulse was rapid, small, and thready. Examination of the sputum showed the tubercle bacilli in large numbers. Liver and spleen were normal. The symptoms continued unabated until his death. Treatment consisted of arsenic and strychnine in small doses, an expectorant mixture with abundance of milk.

Necropsy (*seventeen hours after death*).—The body is that of a well-developed, moderately emaciated, adult white male. Rigor mortis well marked. The skull cap, brain case, sinuses, and vessels are normal. The brain and meninges are normal and weigh 1,620 grams. The pericardial sac contains 100 c. c. of a serous straw-colored fluid; the membrane is normal. The heart weighs 327 grams; the muscles, especially those of the left ventricle, are flabby and anæmic; otherwise the heart is normal. The aorta shows commencing atheromatous degeneration. The left pleural cavity is entirely obliterated, due to dense fibrous adhesions uniting the parietal and visceral layers of the pleura. The right pleural cavity contains little or no fluid, and with the exception of a slight adhesion over the apex, posteriorly, is normal. The right lung weighs 1,415 grams; cut section reveals three small cavities in the apex; the largest is 4 c. m. in diameter and contains a thick cheesy exudate of a yellowish-green color. The rest of the lung is consolidated throughout and studded with tubercles, some of which have undergone caseation. The left lung weighs 1,245 grams; on cut section tubercle processes are found throughout its entirety, with cavity measuring 5 c. m. at the apex containing a cheesy exudate; smaller cavities are also found throughout the lung. The omentum is devoid of adipose tissue, and contains numerous enlarged glands about the size of a pea. The peritoneum presents many adhesions. The spleen is slightly enlarged, weighs 247 grams, is increased in consistence, and anæmic. Both kidneys are anæmic, otherwise normal. The right kidney weighs 167 grams, the left 160 grams. The left supra renal capsule is smaller than normal and presents two tubercular nodules on its upper surface. The right capsule is normal. Liver weighs 1,650 grams, cut section shows it to be slightly pale with some brown induration. The pancreas is normal. The mucous membrane of the stomach is pale and anæmic, more or less destroyed at its greater curvature. The appendix is bound down by adhesions; it measures 14 c. m. in length, its mucous membrane is slightly thickened, and the canal shows an irregular diameter and many bands of fibrous connective tissue. The intestines show many tubercular ulcers, being more numerous in the lower third of the ileum; they vary from 0.5 c. m. to 2.5 c. m. in diameter. The bladder and the remaining portion of the genito-urinary tract is normal. The spinal cord was not examined.

M. E. S.
J. M. G.

Lung and ileum examined. Both show characteristic lesions of tubercle. In the intestinal lesions, as well as those of the lung, tubercle bacilla were demonstrated.

D. M.

Hypostatic pneumonia.

H. S.; aged 22 years; nativity, Illinois; was admitted to the United States Marine Hospital, St. Louis, Mo., July 11, and died September 13, 1899.

History.—Had uninterrupted attack of malarial fever lasting six or seven weeks when a child. Has had pneumonia following stab wound of left lung. Has been jaundiced off and on for the last few years. Had syphilis in 1891; eruption appeared two months later. Began treatment two years after infection; then took medicine for two or three months. Has been pretty well for last two or three years, with exception of periods when jaundiced, and an attack of pleurisy last March. Has lost some flesh during last two months. Ankles became weak and swollen, and then face began to appear puffy. Since June 4 has noticed dyspnœa. Palpation of left side showed absence of fremitis extending from nipple anteriorly to fourth rib in mid-axillary line and 1 inch above inferior angle of scapula. Percussion shows dullness from this line downward to limit of thorax. Auscultation shows suppressed respiratory sounds over whole of left lung, with absence of sounds below line above described. Change of posture causes the shifting of all the above signs. Heart sounds muffled; impulse weak; no murmurs. Fluid present in lower part of abdominal cavity. Liver: Dullness extends width of six fingers below costal border. Firm to pressure, but not tender. Feet swollen, pit on pressure.

July 13, 1899.—1,450 c. c. serous fluid drawn from the left pleural cavity; urinalysis shows albumen and casts.

July 14.—Patient states to-day that he has had attacks of enteritis for the past year, and that he drinks to excess; cascara sagrada 4 gm. at night.

July 18.—Put on potassium iodide.

August 15.—Does not improve. Remains in bed most of the time; is beginning to complain of cough, dry, worse in the morning; at extreme apex of lungs there is beginning consolidation, bronchial breathing and moist râles; expectoration not profuse; hydrocyanic cough mixture ordered p. r. n.

September 1.—Frequently complains of pain in liver region; counterirritants give temporary relief. Ascites does not increase nor decrease. Bowels kept active.

September 10.—Complains of having absolutely no appetite. Given tincture of nux vomica 0.33 and compound tincture of gentian 4 t. i. d. a. c.

September 12.—Seemed no worse than usual at evening sick call.

September 13.—Died at 12.30 a. m.

Necropsy (eleven hours after death).—Body poorly nourished, extremities emaciated, abdomen distended. Length of body 178 cm. Calvarium one-half cm. thick. Brain: Weight, 1,480 grams; 19 by 15½ by 8¾ cm. No anomalies. Right lung: Adherent at apex and at lower border posteriorly; weight, 1,050 grams; 24 by 15 by 9¾ cm. Apex consolidated. Lower lobes the seat of hypostatic pneumonia. Miliary tubercles scattered throughout the lung. Left lung: Weight, 800 grams; 21 by 17¾ by 15½ cm. Apex less consolidated than in other lung. General conditions similar to right lung, slightly adherent to pleura all over. Heart: Weight, 500 grams; 15 by 11 by 5½ cm. Pericardium firmly adherent. Thickness of left ventricle walls, 2½ cm.; of right ventricle, 1 cm. A beginning calcareous degeneration of the aorta. An ante-mortem clot in right auricle. Left kidney: Weight, 350 grams; 15 by 8 by 4½ cm., enlarged, congested, capsule adherent. Numerous minute cheesy spots scattered throughout cortical portion. Cortical structure 1 cm. thick. Fatty infiltration in and about the pelvis. Right kidney: Weight, 360 grams; 14 by 9 by 3½ cm. Condition similar to left one. Cortical portion 1 cm. thick. Spleen: Weight, 820 grams; 20 by 15 by 6½ cm., enlarged, congested, and friable. Liver: Weight, 3,020 grams, 32 by 30 by 9 cm., enlarged, pale and tough. Surface smooth. Capsule peels readily. Intestines pale and distended with gas. Large amount of fluid in abdominal cavity.

J. M. H.

H. R. McM., aged 32; nativity, Wisconsin; admitted to hospital at Norfolk, Va., September 4, 1899; died September 11, 1899.

The patient was admitted suffering with profuse diarrhea, fever, and night sweats; slight cough, broncho-pneumonia, purulent sputa, and died on the seventh day after admittance with symptoms of collapse.

Necropsy (ten hours after death).—Body: Emaciated, abdomen distended, rigor mortis slight. Heart: Endarteritis at aortic valve, some thickening mitral, muscle pale, coronaries good. Pericardium normal. Lungs: Left very adherent, large cavity at apex involving nearly whole upper lobe, rest of lung light in color (anæmic). Right, small cavities at apex and in middle lobe, rest of lung light in color and containing air. Brain: Considerable fluid in meninges, vessels injected, fluid in ventricles. Peritoneum: Omentum is adherent to pelvis and to abdominal wall and intestines, greater cavity filled with purulent fecal fluid, glands elongated and caseous, perforation in small gut. Liver and spleen apparently normal.

E. E. F.

Brain.

J. R. (white), aged 47; nativity, Maryland; was admitted to the United States Marine Hospital, Baltimore, Md., December 28, 1899; died March 21, 1900.

History.—Family history good. Twenty years ago had pleurisy. In July, 1898, first noticed a cough, with slight expectoration, which gradually grew worse. Was admitted to this hospital in August, 1899, having lost 60 pounds in weight since the January previous. Physical examination at that time: Inspection showed a pigeon-breasted chest; marked emaciation; dullness over both lungs, especially in the upper lobes, both anteriorly and posteriorly; bronchial breathing; vocal resonance increased; broncophony present; right lung revealed the more extensive infiltration. Microscopical examination showed the presence of the tubercle bacillus. Was discharged December 1, 1899, at his own request, and readmitted December 28, 1899. Patient's cough had become excessive, and the cervical glands on the right side had become swollen. On March 1 a complete hemiplegia of the right side was noted, previous to which the patient had complained of headaches; tongue was also paralyzed so that he had great difficulty in speaking and swallowing; gradually lost strength, and died 2.55 a. m., March 21, 1900.

Necropsy (*nine hours after death*).—General nourishment poor, rigor mortis well marked; pupils contracted; post-mortem lividity present in neck and back. Heart weighed 355 grams; pericardium contained about 200 c. c. of fluid; aortic valves presented calcareous deposits, but were competent. The lungs were extensively adherent; the right one so soft and tearing so readily as to prevent removal; the left one was not so extensively diseased; bronchial tubes filled with a muco-purulent exudate extending into the trachea; both lungs presented diffused softened tubercles. Stomach dilated and full of fluid. Liver weighed 1,660 grams. Kidneys congested; left weighed 160 grams, right, 138 grams. Spleen small and firm; weighed 160 grams. Calvarium removed. The pia mater and arachnoid were congested and closely adherent; a deposit of tubercular nodules was found in the pia mater on the left side, the infiltration being especially marked in the fissure of Rolando and the adjacent sulci; the gray matter in this region was softened and on section showed evidence of degeneration.

M. W. G.
G. P.

J. McL. (white), aged 34; nativity, Connecticut; was admitted to the United States Marine Hospital, Baltimore, Md., August 22, 1899; died March 19, 1900.

History.—Two sisters died from cancer of the stomach. Patient's habits intemperate; three years ago contracted syphilis; two years ago had pleurisy of left side. He was in the United States Marine Hospital at Boston for five months, beginning January, 1898, suffering with severe cold and pain in the right side. After leaving that hospital he engaged in his occupation until continuous loss of weight and a troublesome cough impelled him to enter the hospital at Philadelphia in May, 1899. He remained there two months. Upon admission to this hospital patient was suffering from a persistent cough, with profuse expectoration.

Physical examination.—Emaciation not marked; vocal fremitus increased over right lung and apex of left; dullness on percussion, and bronchial breathing over left apex and most of the right lung; evidences or cavity formation in right mammary and midaxillary regions; area of heart dullness increased to the left; a musical double murmur heard over aortic area. The disease made rapid progress, and patient died from exhaustion at 11.30 a. m., March 19, 1900.

Necropsy (*eight hours after death*).—Emaciation extreme; rigor mortis well marked; pupils dilated. Heart weighed 230 grams; flabby; slight stiffening of the aortic valves; clot extending about 2 inches into the aorta was found in the left ventricle. The lungs were found to be one caseous mass, so softened and adherent as to make removal impossible. The stomach normal. The mesenteric glands were enlarged and showed evidence of tubercular infiltration; the walls of the intestines displayed ulcerations, especially the ileum, of a tubercular nature. Liver weighed 1,630 grams. Kidneys were anæmic, left one weighing 155 grams, the right one 139. The spleen weighed 260 grams and was firm. The calvarium was removed; the brain weighed 1,300 grams; slightly anæmic, otherwise normal.

M. W. G.
G. P.

W. R.; aged 28; nativity, West Virginia; was admitted to the United States Marine Hospital, Cincinnati, Ohio, April 19, 1900, and died May 19, 1900.

History.—About four months prior to date of admission first noticed a slight cough. This gradually became worse, and at the end of the second month was accompanied by a loss of weight and night sweats. On examination, dullness was elicited over the apices of both lungs. Tubular breathing was noted on right side. Moist, crackling râles were found over left apex. There was a slight increase in both vocal and tactile fremitus. On microscopic examination of the expectoration, which was not profuse and only moderately mucopurulent, tubercle bacilli were found. The treatment was largely supportive and symptomatic. The patient's decline was rapid, and he died at 1.30 a. m. May 19, 1900.

Necropsy (*twelve hours after death*).—Body very much emaciated. Rigor mortis present. Brain: Excessive amount of cerebro-spinal fluid present ;brain otherwise normal. Weight of brain, 1,562 grams. Chest: Pericardium normal and contained no fluid. Heart valves normal. Was in diastole and filled with dark post-mortem clots. Weight of heart, 342 grams. Pleura somewhat thickened with lateral adhesions of left lung; right lung adherent throughout. There was a marked œdema of the posterior portion of the left lung; it containedseveral large pus cavities and was studded with tubercles. Weight of left lung, 918 grams. The right lung contained two extremely large pus cavities and was also studded with tubercles. Weight of right lung, 1,306 grams. A diffuse bronchitis was also found. Abdomen: Mesenteric glands enlarged. Stomach normal and contracted. The intestines were congested throughout. Glisson's capsule somewhat thickened; liver otherwise normal. Weight of liver, 1,991 grams. Spleen normal; weight, 233 grams. Kidneys normal. Weight of right kidney, 187 grams; weight of left kidney, 187 grams. Remainder of genito-urinary tract apparently normal.

J. M. E.
J. W. S.
R. D. M.

W. W.; transferred from Los Angeles, Cal.; died on the journey to Fort Stanton sanitarium; aged, 36; nativity, California.

History.—(Taken from clinical notes of the medical officer in command at Los Angeles, Cal.) Family history negative. History of left-sided pleurisy in 1895, more or less cough, subsequently, and occasionally hæmoptysis. Since November, 1899, increased cough, progressive weakness, anorexia, profuse expectoration, and loss of weight.

Physical examination.—Emaciation, diminished movement of right side of chest, quick and shallow breathing, increased vocal fremitus over entire right lung, with general dullness over that lung except region 1 inch to right of right nipple, where a tympanitic sound was elicited. Roughened respiration in left lung. In right lung bronchial breathing and broncho-cavernous breathing in region to right of right nipple after expectoration. Tubercle bacilli demonstrated in sputum. Hesitated considerably about sending such a poor case.—(Signed) L.

Necropsy (*four hours after death*).—Inspection of body: Emaciated; skin dry and poorly nourished; inguinal glands enlarged; body warm. Thorax: Anterior mediastinum normal. Heart muscle very friable. Mitral, aortic, and pulmonary valves and orifices normal. Right auriculo-ventricular opening in a state of stenosis due to vegetations, and the tricuspid valve degenerated and incompetent to water test. Pericardium in normal condition. Left lung entirely consolidated superiorly and with many separate tubercular deposits in lower half. Right lung consolidated in apex, and showed several other small foci. Bronchi contained muco-purulent fluid; mucous membrane of trachea much congested. Layers of pleura adherent on both sides, especially posteriorly. The aorta showed incipient arterio sclerosis in its ascending portion; otherwise great vessels normal. Nerve trunks and diaphragm normal. Abdomen: Omentum, spleen, kidneys, and suprarenal capsules, urinary bladder, organs of generation, rectum, and duodenum normal. Stomach contained undigested food and yellowish fluid, and its mucous membrane was congested and ecchymotic. Gall ducts, liver, pancreas, solar plexus, mesentery, and small intestines normal. Large intestines normal, except for slight adhesions between cæcum and vermiform appendix. The great vessels were normal.

C. R.
J. O. C.

J. E. J.; aged 26; nativity, Finland; admitted to the sanitary ranch at Fort Stanton, N. Mex., April 6, 1900.

History.—(Taken from clinical notes of medical officer in command at Vineyard Haven, Mass.) Family history negative. History of influenza about nine years ago. Present sickness began in September, 1898, with heavy cold and cough, followed by expectoration, hæmoptysis, loss of weight, anæmia, fever, and rapid pulse. Improved somewhat during summer of 1899 while at Buenos Ayres, but soon failed rapidly again. Physical examination September 27, 1899, revealed involvement of left apex. No pleurisy or heart lesions were found.

Physical examination of patient when admitted to Fort Stanton sanitarium resulted, briefly, as follows: Great emaciation, anæmia, and dyspnœa. Characteristic chest and finger nails; marked depression over third intercostal space above cardiac region, with visible pulsation. Contraction in volume of entire left chest, with slightly diminished movements. Vocal fremitus increased throughout entire left lung. Marked dullness throughout left lung. Right apex dull. Crackling rales throughout left lung, in right apex, and at inferior angle of right scapula. Friction sounds in lower portion of right lung, where pain is felt during respiration. Right lung more or less infiltrated with tubercular foci throughout.

Area of cardiac dullness merged with lung dullness. Slight mitral murmur and reduplication of first sound at apex. Tubercle bacilli found in sputum and also large numbers of micrococcus tetragenous.

Necropsy (*fifteen hours after death*).—Inspection of body: Great emaciation; postmortem lividity and rigor mortis. Calvarium not removed, owing to lack of facilities for doing so. Thorax: Anterior mediastinum contained several enlarged tubercular glands. Thymus gland not observed. Heart enlarged and contained dark clots; endocarditis of left ventricle, with mitral valve covered with vegetation and firmly bound down to endocardium, and incompetent to water test. Tricuspid, aortic, and pulmonary valves in normal condition. Pericardium contained a little serous fluid. Layers of left pleura adherent all over, and to diaphragm; layers of right pleura adherent superiorly. Left lung almost entirely consolidated, and portions cut off sank in water; no crepitus elicited. Right lung full of tubercular deposits above, with scattered foci throughout. The bronchi contained thick muco-purulent matter and blood. The great vessels and nerve trunks were normal. Diaphragm adherent to base of left lung. Abdomen: Omentum somewhat thickened, but no adhesions. Spleen, right kidney, and suprarenal capsule normal; left kidney contained tubercular foci. Urinary bladder normal and contained a small amount of urine. Organs of generation, rectum, and duodenum normal. Stomach contained fluid and clotted milk, and its mucous membrane congested and ecchymotic. Gall ducts and gall bladder normal, the latter containing bile. Liver, pancreas, solar plexus, mesentery, small intestines, large intestines, vermiform appendix, and great vessels normal. The spinal cord not examined.

C. R.
J. O. C.

J. D.; aged 54; nativity, Ireland; admitted to the sanitary ranch at Fort Stanton, N. Mex., January 20, 1900.

History.—(Taken from clinical notes of medical officer in command at St. Louis, Mo.) No family history. Present trouble began, apparently, about one year ago, with hæmoptysis. Since then has had purulent expectoration and cough and dyspnœa. Recently the patient sustained a fracture of the left patella. Physical examination showed œdema of both legs and ankles; urinalysis was practically negative, except the specific gravity was only 1,010. Roughened respiration in both lungs, with prolonged expiration and dyspnœa. Heart hypertrophied, with systolic murmur at apex. Anorexia, gastric pain, and profuse expectoration with hæmoptysis. Tubercle bacilli demonstrated in sputum.

The condition of the patient when admitted to Fort Stanton Sanitarium was, briefly, as follows: Dullness in both lungs, superiorly, with increased vocal fremitus, crackling râles, and bronchial breathing; dyspnœa which steadily increased. Heart enlarged and slight aortic murmur. Urinalysis February 18, 1900, showed large amount of albumin, granular, and hyaline casts, pus and epithelial cells, and micrococci. Died February 19, 1900.

Necropsy (*twenty-four hours after death*).—Body emaciated, skin poorly nourished, and face and legs œdematous; cadaveric rigidity well marked. The calvarium was not removed. Thoracic cavity: The heart was considerably enlarged, especially the left ventricle. Both ventricular cavities contained white thrombi. The mitral, tricuspid, and pulmonary valves were slightly incompetent to water test. There was well-marked sclerosis of the coronary arteries. The ascending aorta showed roughened intima and sclerotic patches, several of which were completely calcified, these latter being in close proximity to the aortic valves. The pericardium was somewhat thickened, but not adherent to the heart; it was, however, adherent to the facia of the anterior mediastinum and to the thoracic wall, thus interfering to some extent with the normal movements of the heart; there was no fluid in the pericardial cavity. The anterior mediastinum showed tubercular enlargement of the lymphatic glands. With the exception of the ascending portion of the aorta, the great vessels of the thorax were normal. The mucous membrane of the trachea was œdematous and showed effects of chronic inflammation. The bronchi contained considerable purulent matter. The pleuræ were thickened and the parietal and visceral layers were adherent throughout their entire extent, including both surfaces of the diaphragmatic portions. Both lungs were completely consolidated superiorily, while the inferior portions contained many separate tubercular areas; consequently there was only a small amount of normal lung tissue present that would float in water. Abdominal cavity: Peritoneum thickened and adherent to the mesentery, binding together the intestines. The small intestines were otherwise normal. The head of the colon contained tubercles in its walls. The remainder of the large intestines was normal, except for adhesions between the cæcum and vermiform appendix. The vermiform appendix was bound down firmly to the cæcum; section showed chronic inflammation and narrowing of its lumen, with a stricture near the distal end. The spleen was enlarged and friable. The kidneys were both contracted, granular and with adherent capsules, especially so the right one. Both were constricted in places by bands of connective tissue, which cut like cartilage. The cut surfaces showed the aforesaid bands and in the right kidney obliteration of line between the corticle and medullary portions. No cysts were present and the pelvis was normal in each organ. The adrenals were both hard and granular, the left one being adherent to the tail of the pancreas; the supra-renal fat was much diminished. The urinary bladder showed considerable thickening of its walls and diminution in size of its cavity. The mucous membrane was congested and in a state of chronic inflammation; a small quantity of cloudy urine was present. The stomach was much dilated and contained some dark fluid. The mucous membrane was congested and presented ecchymotic patches. The walls were very thin. The pancreas was enlarged and its tail extended over to the left adrenal body to which it was firmly adherent; the length of the pancreas was 26 cm. The mesentery showed tubercular enlargements of the lymphatic glands. The great blood vessels of the abdominal cavity were normal. The liver was enlarged and in a state of hypertrophic cirrhosis; it was contracted in places by bands of fibrous tissue, which cut like cartilage; the liver was adherent to the parietal peritoneum over its convex surface. Cut surface showed "nutmeg" appearance and bands of fibrous tissue. The walls of the gall bladder were in a state of degeneration resembling colloid material and the organ contained a pale yellowish fluid not like bile. The gall ducts were in normal condition.

C. R.
J. O. C.

Tubercle of lungs.

J. W.; aged 47 years; nativity, Norway; was admitted to the United States Marine Hospital, port of San Francisco, Cal., December 18, 1899, and died January 29, 1900, at 9.15 p. m.

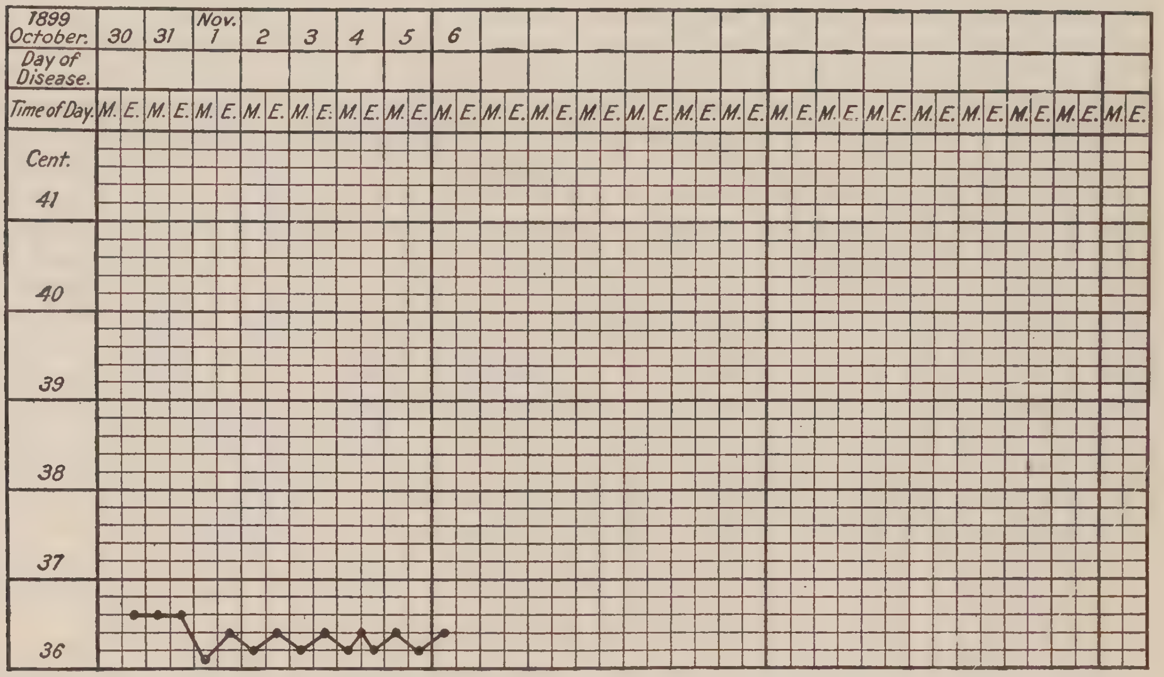
History.—Family and previous history was negative; he complained of cough, accompanied with an abundance of expectoration, which he said commenced four months ago. He had been losing in weight and was very weak. He complained of dyspnœa and anorexia, but had no night sweats. On physical examination, apices of both lungs were found to be hyperresonant, the lower lobes giving a dull note on percussion. Amphoric breathing was heard over both apices, accompanied by large, moist, bubbling râles. On January 25, 1900, he became stuporous, often roused with difficulty and at times delirious, leaving his bed and walking about the ward talking at random. He was confined to a private ward, where he continued to grow rapidly worse. His pulse was weak, rapid, and compressible. His treatment was symptomatic and supportive, with a nutritous diet. His temperature chart presented no feature of interest.

Necropsy (sixteen hours after death).—Body that of a muscular, emaciated, white adult male. The abdomen is retracted; post-mortem rigidity well developed. There are extensive adhesions of both pleura. The pericardium is normal and contains a normal quantity of fluid. The heart weighs 250 grams; the left ventricle is filled with a fibrinous clot. The valves are competent as per water-column test. The aorta shows some atheromatous changes. The left lung weighs 552 grams, and is infiltrated throughout with tubercular nodules, showing cavities filled with thick, purulent, tubercular débris. The right lung is so adherent that it can not be removed; it is much smaller than the left, and cut section shows two large cavities; the rest of the lung being infiltrated with tubercular nodules. The spleen weighs 170 grams; its capsule is nonadherent; on section it is pale, otherwise normal. The left kidney weighs 203 grams; its medullary portion is thickened and presents the appearance of a parenchymatous nephritis. The right kidney weighs 137 grams; its capsule strips easily, and on section presents the same appearance as the left. The liver weighs 1,907 grams. Its cut section shows an increase of the connective tissue and an infiltration of fat. The gall bladder is nearly empty, otherwise it is normal. The pancreas weighs 107 grams, and is normal. The intestines show a large number of ulcers at frequent intervals throughout the jejunum and ileum, ranging in size from 0.5 cm. to 3 cm. in diameter. In the cæcum is a large irregular ulcer 3 cm. in diameter. Ulcers are also seen throughout the colon. The appendix is very fleshy at its tip, otherwise normal. The brain weighs 1,420 grams; there is a large increase of cerebro-spinal fluid, with a few adhesions of the dura to the vertex. No lesions found on cut section.

F. J. T.
M. E. S.
J. M. G.

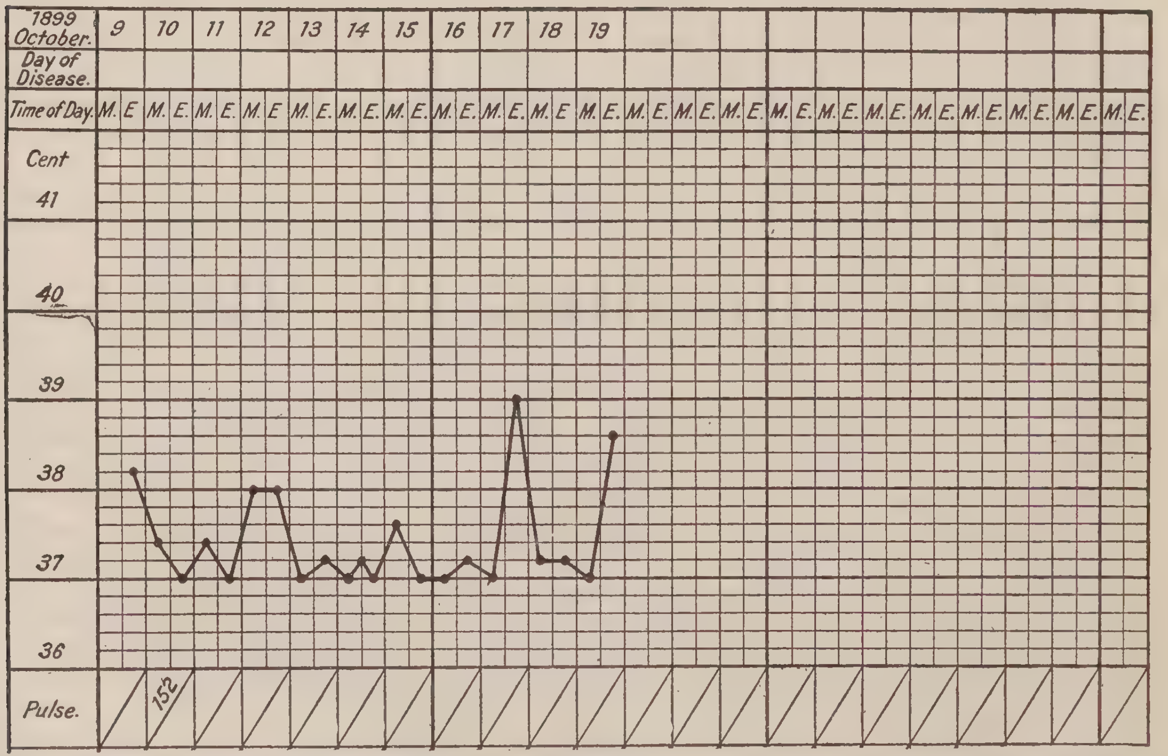
Spleen; kidney.

F. N.; aged 24 years; nativity, Sweden; was admitted to the United States Marine Hospital, port of San Francisco, Cal., October 9, and left improved October 21, 1899; reentered October 28, and died November 11, 1899.



[United States Marine Hospital, port of San Francisco, Cal. Name, F. N.; age, 22 years; disease, tubercle.]

History.—Family history negative or unknown. Patient stated that he had suffered with "malaria" two years ago and had never been well since. He gave a history of syphilis. On each admission he complained of persistent cough with profuse expectoration, shortness of breath, sore throat which gave considerable pain on



[United States Marine Hospital, port of San Francisco, Cal. Name, F. N.; age, 22 years; disease, tubercle.]

swallowing, night sweats, insomnia, anorexia, and sour eructations, with progressive loss of weight and strength. Physical examination showed the right side of the chest moving more than the left, dullness over both apices, a friction sound over the right apex and bronchial breathing over both upper lobes; râles all over chest;

heart sounds normal, but rapid. His temperature was quite irregular, reaching as high as 39° C. on one occasion. His pulse rate was constantly over 100. Repeated examinations of his sputum disclosed numerous tubercle bacilli. His urine contained no albumen. His temperature toward the end was persistently subnormal. His bowels remained regular throughout his stay in the hospital. He was treated with stimulants and nutritive diet, with local application to his throat, but grew progressively weaker, and died at 9.25 a. m., November 11, 1899.

Necropsy (*four hours after death*).—Body that of a much emaciated, poorly developed, young adult white male. Rigor mortis moderate. Abdominal and omental fat slight in amount. On opening abdomen parietal and visceral layers of peritoneum found to be the seat of very extensive tubercular involvement, the tubercles for the most part the size of a pin head or less, showing no evidence of caseation. Mesenteric and retro-peritoneal glands enlarged. Abdominal cavity contained no fluid. Pelvic peritoneum particularly involved, being so closely studded with tubercles that they formed almost a continuous sheet. Pleural cavities both practically obliterated by firm adhesions. Pericardial sac contained a normal amount of serous fluid; its walls free from tubercles. Heart weighed 205 grams; small, flabby, and friable. Right auricle somewhat distended with mixture of clotted and fluid blood. Mitral valve somewhat thickened, though competent. Other valves normal. Left lung weighed 665 grams; studded throughout with tubercles. Tubercles in lower lobe more discreet and showing less tendency to caseation than in upper lobe. Apex of upper lobe showed a number of cavities, the largest being about the size of a walnut. Right lung weighed 762 grams; revealed a condition almost precisely similar to its fellow, save that its upper lobe contained more numerous tubercles. Spleen weighed 173 grams. Capsule thickened and containing a few tubercles. Splenic substance firm and free from tubercles. Left kidney weighed 129 grams. Capsule normally adherent. Substance rather pale and anæmic. No tubercles. Left adrenal normal. Right kidney weighed 115 grams; resembled left kidney, except in that there were a number of tubercles, in early stages of development, scattered throughout cortex. Right adrenal normal. Liver weighed 1,230 grams. Upper surface everywhere firmly adherent to diaphragm. Its substance of firm consistence, dark in color, slightly tinged with bile, the divisions of the lobules being very distinct. No tubercles. Gall bladder slightly distended with dark-green bile. Its duct patent. The mucous membrane of the stomach and intestines apparently normal. In the sigmoid flexure a number of large ulcers were found. Colon much less involved. Large ulcers in cecum and in the neighborhood of ileo-cæcal valve. Lower portion of ileum very extensively involved. Ascending the small intestine, ulcers became less numerous and apparently more recent. Jejunum involved to within 50 c. m., from its junction with the duodenum. The brain weighed 1,485 grams. Somewhat excessive amount of fluid beneath dura; otherwise normal. No tubercles.

W. M. W.
D. M.
J. M. G.

Lobar pneumonia.

H. H.; aged 30 years; nativity, Mississippi; colored; was admitted to the United States Marine Hospital, St. Louis, Mo., August 2, 1899, and died August 11, 1899.

History.—The patient was brought to this hospital in the ambulance, suffering from injuries received twelve hours previously in falling through a hatchway 6 feet in depth. Upon arrival at this hospital he complained of having had a chill while coming down in the ambulance, with a pain just under the right nipple. An examination of injuries failed to reveal any fractures, though left wrist and ankle were somewhat contused. Five hours after reaching this hospital dyspnœa developed, and a physical examination of the chest showed bronchial breathing and crepitant râles over the middle and lower lobe of the right lung, with compensatory breathing in the left lung. Heart, normal; pulse was full and bounding. Tincture of aconite rad. was ordered, and this treatment was continued for six hours, when pulse came from 108 to 98, though respirations slightly increased in numbers. On the 3d of August aconite was suspended and 2 grains of quinine was ordered every two hours. On the morning of the 4th the patient is doing well, but has lost control of the anal sphincters; has about six passages in twenty-four hours. Cold applications to the affected lung were removed on the morning of the 5th, when he had a chill. Twenty c. c. of whisky prescribed; temperature slightly subnormal, but patient doing well. A weak listerine mouth wash was prescribed for cracked lips and sordes. On the 6th 15 c. c. of whisky and an expectorant was ordered every three hours. An enema was also ordered. On the 7th physical condition of lungs improved, but the patient developed a low form of delirium, which increased to an active mania and continued to within a few hours of the fatal termination. On the 11th hypodermatic injection of 7 mm. of Magendies's solution, to control mania, and hypodermatic injection of 2 c. c. of whisky, to stimulate flagging heart, repeatedly administered. He finally succumbed at 3.10 a. m.

Necropsy (*twelve hours after death*).—Height, 167 cm.; body well nourished; scars of old syphilitic eruption apparent over body. Rigor mortis well marked. Calvarium 5 mm. thick; weight of brain, 1,350 grams; measurements, 26 by 24 by 8 cm. Dura mater not congested; nonadherent, except along the long longitudinal sinus. Pia mater congested generally. Brain normal. Right lung adhered posteriorly; exudation of lymph along the lower border; weight, 750 grams; measurements, 24½ by 21 by 7 cm.; lower and middle lobes solidified; upper lobe crepitant and somewhat congested; nevertheless floats; lower lobes gray; upper lobe red. Left lung: Posterior surface of lower lobe adherent; weight, 550 grams; measurements, 24 by 19 by 8 cm.; color externally, grayish red, internally of a dark red, somewhat congested. Heart: Weight, 345 grams; measurements, 16 by 15 by 5½ cm.; antemortem clots in aorta and right ventricle. Myocardium friable, pale, and covered with an excess of fat; valves normal. Large amount of adipose tissue in abdominal walls; wall 2 cm. thick. Intestines grayish green. Left kidney: Weight, 310 grams; measurements, 18 by 12 by 6 cm.; lobulated, enlarged, and pale; capsule, adherent; cross-section shows excessive fatty degeneration. Right kidney: Weight, 155 grams; measurements, 16 by 9 by 4 cm.; smaller than left, but has undergone similar pathological changes. About two-thirds of kidney tissue obliterated. Spleen: Weight, 150 grams; measurements, 13 by 10 by 3 cm.; pale and slightly atrophied; color internally of a pale grayish red. Liver: Weight, 1,850 grams; measurements, 28 by 25½ by 8½ cm.; old cicatrices are scattered over the surface of the liver, probably syphilitic. Appendix normal.

J. M. H.

H. F.; age 18 years; nativity, Tennessee; admitted to the United States Marine Hospital, St. Louis, Mo., February 26, and died March 4, 1900.

History.—The patient was brought to the hospital in the ambulance. He stated he had been sick for two days. He was taken sick in the afternoon with a severe chill and pain in the right side. A few hours afterwards he coughed up a quantity of blood. Present condition: Body well nourished, marked dullness over the whole of the right lung, vocal fremitus also increased, and numerous râles and friction sounds heard upon auscultation, especially at apex. Left lung in good condition, the respiratory murmur, however, being louder and harsher than normal; expectoration abundant, tenacious, and pneumococci present in great numbers. The patient groans with each respiration and complains of severe pain in his chest when he coughs. The temperature is 39.8, respiration 31, and pulse 118. The urine contains albumen and the microscope shows the presence of blood casts and free blood cells. Sp. gr. of urine, 1.016.

February 27.—Temperature is 39.6°, respiration 30, pulse 100; a few small râles heard at base of left lung; right lung completely consolidated, the dullness, however, being most marked at the apex.

February 28.—Temperature, pulse, and respiration taken every two hours. The temperature ranged between 38.6° and 39.3°, respirations from 36 to 42, and the pulse from 99 to 114. He complained of severe pain in abdomen over the liver and around the umbilicus; abdominal walls tense and tympanites present. These symptoms were greatly relieved by counter-irritants and enemata.

March 1.—Temperature ranged from 38.2° to 39.2°, respiration from 31 to 43, and pulse 103 to 119.

March 2.—Temperature ranged from 38° to 39.3°, respiration from 36 to 44, pulse 102 to 126. Albumen still present in urine; complains occasionly of pain in abdomen, but very little tympanites present. During the evening he perspired freely about face and neck.

March 3.—Respiratory murmur is much clearer over right lung, and remains clear over left lung. He continued to perspire freely during the early part of the day. He was very restless, suffered from dyspnœa; temperature ranged from 38° to 39.3°, respiration from 40 to 47, and pulse from 108 to 138.

March 4.—Numerous râles heard at base of left lung, also rough friction sounds over the cardiac region; right lung considerably improved, and expectoration freer. Pnemococci are present in sputum, apparently in a pure culture; feet swollen, and albumen and casts still present in urine; bowels open and no tympanites present. Patient delirious at times; temperature ranged from 38.4° to 39.2°, respiration from 46 to 54, and pulse from 121 to 151. He died at 11 p. m., from exhaustion.

Necropsy (*twelve hours after death*).—Body fairly well nourished. There is a scar 7 cm. in length on outer side of left leg. The height of the body is 175 cm. There is an ulcer on second phalanx dorsal surface of index finger of left hand. The umbilicus is especially prominent. Dark venous blood oozes from the subcutaneous tissues on making an incision through the chest wall. The muscular tissue is of a bright-red color. The calvarium is removed with difficulty owing to meningeal adhesions. The cortical meninges are opaque, thickened, and adherent throughout on either side of the longitudinal fissure. The sinuses are engorged. The brain weighs 1,525 grams and measures 16 by 13 by 10 cm. and is apparently normal. On opening the peritoneal cavity a small quantity of yellowish fluid poured out. A yellowish-white exudate is present on the peritoneum, especially thick over the liver and over parts of the intestines. A small amount of water exuded from the chest cavity on removing the sternum. The pericardium is attached to the sternum. It is lined with organized lymph, small bands extending from the parietal to the visceral layer. The sac contains 360 c. c. of a chocolate-colored fluid. On peeling off the exudate the cardiac muscle on the left side is of a red color mottled with blue; on the right side it is of a pale gray color. The right ventricle is filled with dark fluid blood, in amount 20 c. c. The left ventricle is empty. The mitral valve is slightly thickened. The heart weighs 420 grams and measures 11 by 12 by 7 cm. The right lung weighs 1,100 grams and measures 21 by 16 by 8 cm. It is attached to the anterior wall of the chest. Organized lymph on the posterior part of the lung binds it to the chest wall. The upper lobe externally is of a dark purple color, slightly crepitant on pressure, and on section dark blood and serum oozes from the cut surface, which is of a dark chocolate color mottled with black. The lower lobe is soft, somewhat crepitant, and the same color internally as the upper lobe. It is somewhat softer than the upper lobe, which is principally affected. The right pleural cavity contains 220 c. c. of fluid; the lower posterior surface of the cavity is lined with organized lymph. The left lung weighs 795 grams and measures in length 22 by 8 by 5 cm. It is of a brownish color mottled with dark blue over whole external surface, soft, and crepitant. The base of the lower lobe is the only part that is hard and resistant. The spleen weighs 251 grams and measures 12 by 9 by 6 cm.; externally it is of a slate color and on section the pulp is prominent and filled with white specks. The left kidney weighs 220 grams and measures 11 by 8 by 5 cm. The capsule is not adherent. This kidney is of a whitish lead color externally. The right kidney weighs 205 grams and measures 12 by 8 by 4 cm. It is of a whiter color than the left externally, while internally the structure is the same. The cortical portion, 1 cm. thick, is red streaked with yellow. The stomach is filled with a dark chocolate-colored fluid. The appendix is normal. The liver weighs 2,600 grams and measures 30 by 22 by 12 cm. Externally it is of a yellowish-red color. The tissues on section show small reddish-brown lines intersecting each other in all directions.

W. G. S.

A. S. (colored); male; age, 60 years; native of Alabama; admitted to the United States Marine Hospital, Mobile, Ala., February 10, 1900, suffering from lobar pneumonia.

Patient stated on admission that he had been sick seven days with chill, pain in the chest, loss of voice, and on admission the loss of voice was almost complete. His temperature was 38° C., pulse 80, bowels open. The right lung was nearly consolidated, except a few points where râles could be made out.

Necropsy (*twelve hours after death*).—Body that of a tall male negro; somewhat emaciated; rigor mortis marked; no lividity observable; no discharge from nose or mouth; pupils dilated. Scar on right groin 8 inches long; old bullet wound in abdomen, 1 inch above umbilicus. In cutting and removing skin from skullcap considerable amount of pus was found, as if he had once received a blow on the head. Skin over skullcap was very tightly adhered. Skullcap was thinner than usually found in the negro race. The body was opened by the usual long incision, reaching from chin to symphysis pubis, in the median line of body. Muscles were somewhat pale. The organs were very much crowded out of their normal position, the liver extending across the abdomen, covering the intestines, which were somewhat distended; the arch of the diaphragm on each side is between the fourth and fifth ribs. After removing the sternum the lungs came into view. The pericardium was almost entirely covered by the lungs; the pleuritic adhesions were very extensive. The pericardium was normal. Heart was very much hypertrophied; weighed 425 grams; valves were competent. Both lungs very œdematous; left lung weighed 650 grams, and was in the stage of gray hepatization. The right lung was completely solidified; pus exuded freely on section. The weight of right lung was 1,980 grams. Intestines distended with gas; position of parts normal. There was no fluid in abdominal cavity. The gall bladder was distended and full of bile. Spleen was normal, weighing 275 grams. Right kidney weighed 200 grams; capsule peeled readily; line between cortical and medullary substance well marked. Left kidney is normal; capsule peels readily; weighs 200 grams; line between cortical and medullary substance bearing the same relation as in the right kidney. The right suprarenal capsule soft and normal, weighs 15 grams; the left suprarenal capsule is normal, and weighs 10 grams. The liver is of a dark-red color, very much congested; bled freely on section; weighs 1,800 grams. It is granular in appearance. The soft parts covering the skull are divided by an incision carried transversely over the head and reflected back. There was some pus over temporal bone; the skullcap was narrow, slightly arched, and thin. On opening dura mater the membranes were found to be normal. On section, the brain appeared normal. There is no fluid in lateral ventricles. The weight of the brain is 1,350 grams; small brain weighs 175 grams.

W. P. M.

C. H.; age, 20 years; born in Mississippi; was admitted to the United States Marine Hospital, Cairo, Ill., March 23, 1900, and died March 29, 1900.

On admission the patient stated that two and a half days ago, while working about his boat, the "captain of the watch," who was intoxicated, made an unprovoked assault upon him with an ax, striking and cutting him in the back. The wound was sutured by "some doctor down the river." On examination, there was revealed an incised wound of the back about 5 cm. long, located on the right side, between the vertebral column and the scapula, on a line with the lower angle of the scapula. There were two silk sutures closing the wound. Granulation well begun. Wound was clean, nothing abnormal being evident. Patient had a temperature of 38.8° on admission, but said he had had no chill. Had no pain except "soreness" in back where he was cut. No evidences of injury to right lung, which was suspected before examination.

March 24.—Temperature 39.2° this morning. Patient feels better than he did yesterday. About 11 a. m., after sick call, patient changed for the worse. Became restless and confused. Temperature rose to 41.2°; respirations increased to 44; pulse 133, weak and compressible. Complained of pain in right side. Had dry, sharp, hacking, repressed cough. On examination, there was broncho-vesicular respiration, dry râles, increased vocal resonance and fremitus over lower lobes of right lung. A beginning lobar pneumonia. Patient markedly stupid, semidelirious; gives irrelevant answers; talks incoherently; attempts to get out of bed. Acuteness of attack marked. Given calomel 0.66 gram dry on tongue; no water allowed for two hours afterwards; tr. aconiti rad., 0.06; tr. belladonna, 0.06. M. Sig. A dose every hour until discontinued. After taking 10 doses of above, it was discontinued. Cold compresses to chest. Cold sponging p. r. n., to keep temperature below 39.8° if possible.

March 25.—Patient in a very satisfactory condition, considering the stage of the disease. Temperature remained below 40° all day. No catharsis after administration of calomel yesterday.

March 26.—A decided improvement this afternoon. Temperature fell to 38.2°.

March 27.—Doing well. Moist râles can be heard over base. Heart action needs assistance; given tinct. digitalis 0.33 gram q. 3 h. In the late afternoon the patient was in distress. Temperature 40°. Respiration more rapid. Examination revealed involvement of left lung; no vesicular breathing at base; upper lobe affected also. Outlook changed from encouraging to well-nigh hopeless. About only region of unaffected respiration is right upper lobe; the right lower lobes will hardly resolve soon enough to take place of newly affected left lung in supplying oxygen. While no medication is promising, to stimulate is the first indication. Given strych. sulph. 0.003 gram and spts. frumenti 20 c. c., q. 3 h.

March 28.—Temperature, 37.6°; pulse, 152; respiration, 53 in a. m. Condition critical. Shows response to stimulation. Latter all that keeps him alive. No undue action of nervous system. Wound of back is clean and unoffensive. In afternoon temperature rose to 39.4°; respiration was 60; pulse 152, and failing. At bedtime patient was moribund.

March 29, 1900.—Died at 12.30 a. m. of lobar pneumonia, double.

Necropsy (*fifteen hours after death*).—Rigor mortis very well marked. Body well nourished. Abdominal wall, 2 cm. thick. Free fluid in pericardial sac. No pericardial adhesions. Heart weighed 480 grams; dimensions, 13.5 by 10 by 5.5 cm.; thickness of wall of left ventricle, 2 cm.; of right ventricle, 0.5 cm.; chicken-fat clot in right ventricle; coronary vessels dilated; valves normal; post-mortem clot in left ventricle; anterior mediastnum normal. Extensive recent pleuritic adhesions on both sides. Both lungs consolidated except upper lobe of right. Fibrinous exudate all over left lung. Left lung weighed 760 grams; dimensions, 19 by 13.5 by 4.5 cm.;

will not float. From macroscopic appearances seems to be in a state of "red hepatization," while affected portion of right lung has progressed further, being in state of "gray hepatization." Right lung weighed 810 grams; dimensions, 20 by 14 by 5.5 cm. Upper lobe only crepitates. Omentum normal. Spleen weighed 280 grams; dimensions, 14 by 8.5 by 4 cm. No abnormalities. Right kidney weighed 250 grams; dimensions, 12 by 7 by 3 cm.; cortex, 0.75 cm. thick. Left kidney weighed 260 grams; dimensions, 13 by 6 by 3.5 cm.; cortex, 1 cm. thick. Both kidneys normal in appearance. Bladder empty. No urethral stricture. No ulcer on penis. Rectum contained feces. Stomach almost empty, except for small pieces of bread and some milk. Gastric mucous membrane clean, pale, normal. Liver weighed 2,250 grams; dimensions, 26 by 17 by 8 cm.; normal. Gall bladder empty. Intestines and appendix normal. Except for severe pulmonary lesions, the man was in excellent physical condition. There was no relation between wound of back and pleural cavity, and no fracture of ribs.

J. M. H.

Double.—Œdema of lungs.

G. D.; aged 30 years; nativity, Indiana; admitted to the United States Marine Hospital, Chicago, Ill., April 24, 1900; died April 28, 1900.

History.—Was taken sick suddenly at 3 p. m. April 21 with severe chill and sharp piercing pain just below nipple on left side, which was aggravated by deep breathing and coughing. Chill lasted about an hour and was followed by high fever. Breathing became short and troublesome and much increased in frequency. He was barely able to talk, and had short, harsh cough, which was soon followed by scanty, frothy expectoration. He went immediately to bed and took whisky, 15 c. c., every hour, and a quinine sulphate capsule, 0.32 gram, every four hours. Next day expectoration became more copious and tenacious and of a bloody, rusty color. He kept up foregoing treatment until morning of April 24, when, finding himself growing steadily worse, he applied for admission to hospital. On admission patient complained of great weakness and presented a pitiable sight—countenance, anxious; skin, pale and clammy; face, ashen in color, and lips, nose, and ears almost blue. He was panting for breath, the alæ nasi dilating at each inspiration. He was put immediately to bed, and lay on his right side, in which position only he could find relief. Had no appetite, and had taken no nourishment since sickness began. Bowels, constipated; urine, scanty and high colored; tongue, dry and very red. Pulse, 120, and weak; respiration, 40 and shallow; temperature, 38.1° C.

Examination of chest.—Heart's action found to be quickened and weakened, but otherwise normal. Lungs, loss of movement, increase of vocal fremitus, impairment of percussion note, and feebleness of vesicular murmur, found all over left side, and especially over mammary and inframammary regions, where the percussion note was dull and crepitant râles were heard. The right side apparently normal.

Treatment.—Placed on milk diet, small amounts being given frequently. Warm flaxseed poultice fixed around left side of chest. Whisky, 20 c. c., given every hour and quinine sulphate, 0.32 grams, given in capsule ter in die. One dose of calomel and soda bicarb., of each 0.32 gram, given at night. Temperature at night, 39.6° C. Pulse and respiration as in morning.

Subsequent history.—Grew rapidly worse from date of admission. The left lung rapidly became consolidated and then lower lobe of the right lung, the upper lobes giving physical signs of great congestion. Whisky, strychnine sulphate, finally tr. digitalis were given as stimulants; carbonate and iodide of ammonium and finally by cupping over chest for the congestion and subsequent œdema; milk and eggnog as nourishment, but patient grew steadily weaker. Temperature varied between 38° and 39.6° C.; pulse between 108 and 134, and respiration between 24 and 40. A provoking complication was great nausea on mornings of first and second days after admission, at which times whisky was discontinued and limewater added to milk. Bowels were kept freely opened by enemata of glycerine and water. Patient died morning of April 28, giving the symptoms of œdema of the lungs. He was conscious until moment of death.

Necropsy (*twenty-seven hours after death*).—Rigor mortis passing from arms and neck, but complete in other parts. Considerable degree of post-mortem lividity posteriorly. Pupils dilated. General nourishment, medium. On opening pericardium, there was found about 100 c. c. of serous effusion in which was floating shreds of fibrin. The surface was covered with a sheeting of fibrin which gave it a shaggy appearance. On scraping this away the serous membrane was found to be injected and in places ecchymotic. The heart weighed 450 grams. On section, the muscle was of a pale color. The valves were normal. The right ventricle and auricle were filled with clots of a pale yellowish color. On opening the pleuræ, both were found to have in them a considerable amount of serous fluid in which was floating a great amount of fibrinous flocculi. There was about 250 c. c of fluid in the right and half as much in the left pleura, but the latter contained the most fibrinous matter and appeared somewhat purulent. The whole surface of the left lung and that of lower lobe of the right were covered by layers of creamy fibrin, which was about one-half inch thick over lower lobe of left and one-fourth inch thick over upper of left and lower of right. The two upper lobes of right lung were somewhat compressed. The lower of left lung was in stage of gray hepatization. It was hard and friable. On section, a turbid fluid, which was purulent in places, exuded from the cut surface. The upper lobe of left and lower lobe of right lung were in state of red hepatization and were undergoing transition to gray in lower parts. They were solid, firm, and airless. On section, the surface was dry and reddish brown and the substance very friable. On scraping, a reddish, viscid fluid, containing granular material, could be removed. The upper and middle lobes of right lung were in stage of engorgement, being of deep red color, firm, solid, and to some extent crepitant. On section, surfaces were bathed with blood and serum. Right lung weighed 680 and left 940 grams. No other organs were examined.

B. H. E.
H. W. S.

Influenza, complication of pneumonia, pleuritis, and pericarditis.

J. J., aged 32 years; nativity, Sweden; admitted to St. Francis Xavier Infirmary (United States Marine Hospital contract hospital), Charleston, S. C., April 9, 1900. Died April 13, 1900.

History.—Patient stated he had been feeling badly for twenty-four hours prior to admission to hospital. On admission, complained of headache, great prostration, and nausea. Tongue was slightly coated. Had had chill followed by fever on the 8th. Diagnosis of influenza was made.

April 10.—Felt better, and ate well, but during the night complained of pain in left side, and began to expectorate thin, frothy, blood-stained mucus.

April 11.—Complained of no pain; expectoration continued thin and blood tinged; during the afternoon, about 4 o'clock, felt suddenly worse and had a paroxysm of pain and dyspnœa, referred to left side, but was much better by morning.

April 12.—Sat up partially dressed for a while; had some pain, and slight oppression in breathing; the expectoration, however, was quite profuse.

April 13.—About 4 a. m. became worse; great difficulty in breathing, with very troublesome cough; died rather suddenly at 9 a. m.

Necropsy (*seven hours after death*).—Body well nourished; post-mortem rigidity well marked; pupils slightly dilated; lividity marked on neck and back of trunk. Pericardium contained about 75 c. c. fluid. Heart normal to sight, but displaced upward and to the right; weight, 270 grams. Right lung slightly congested; weight, 750 grams; no fluid in right pleural cavity. Left lung very much solidified; felt firm to touch; did not crepitate; upper lobe in a state of red hepatization; lower lobe œdematous and in a state of gray hepatization; tough fibrinous deposit on posterior surface; weight of left lung 1,900 grams; left pleurial cavity contained about 500 c. c. fluid; firm adhesions to chest wall. Stomach empty; apparently normal. Intestines contained some fœcal matter, and seemed normal. Liver normal; weight, 2,000 grams. Kidneys normal; weight of each, 180 grams. Bladder contained about 75 c. c. urine. Spleen soft; weight, 370 grams. Skull-cap: Brain and meninges normal; brain weighed 1,340 grams. Appendix vermiformis about 10 c. m. in length and patulous. The clinical history and necropsic findings in this case show the cause of death to have been influenza, with complication of lobular pneumonia and pleuritis with pericarditis.

F. F. S.
J. V.

Labor pneumonia.

J. H.; age, 64 years; nativity, Germany; was admitted to the United States Marine Hospital, Boston, Mass., February 16, 1900, and died February 20, 1900.

History.—On admission patient was very feeble; gave a history of a chill six days before; bad cough, rusty expectoration; marked dyspnœa; sharp stabbing pains in right side of thorax; severe headache. Pulse, 96; temperature, 38° C. Crepitant râles were heard along the lower border of the right lung anteriorly. Percussion revealed marked dullness in the region of seventh, eighth, and ninth ribs posteriorly and in the region of fifth and sixth anteriorly. Pain, temperature, pulse, respiration, and dyspnœa gradually increased, notwithstanding the administration of morphine, strychnine, digitalis, whisky, cold affusions, and oxygen. Just before dissolution patient was cyanosed and delirious.

Necropsy (*eight hours after death*).—Post-mortem lividity and rigor mortis slight; general nourishment fair; pupils equally dilated. Pericardial sac adherent to the heart and contains about 20 c. c. of straw-colored fluid. Heart weighs 640 grams. Left ventricle is filled with dark-colored clots. Semilunar valves show calcareous deposits along their edges and are incompetent. All the other valves are normal. Pleural cavities: Left is free from adhesions and contains a moderate amount of yellowish serum; right is obliterated by dense adhesions. Lungs: Left weighs 675 grams. Externally it is mottled gray in color, is crepitant, floats, and on section shows the alveoli to be filled with a frothy, blood-stained serum. The major portion of the lower lobe is in a state of red hepatization. Right weighs 1,300 grams. Externally it is bound down by dense adhesions anteriorly, posteriorly, and to the diaphragm. The external surface is pigmented. It sinks in water, and on section is tough and not friable. Lower lobe is in a state of gray hepatization. Some of the bronchi are filled with purulent material. Peritoneum is normal. Stomach contains about 500 c. c. of dark fluid and its walls are congested in places, showing small punctiform hemorrhages. Intestines, both small and large, appear to be normal. Liver weighs 1,950 grams, is dark red in color, friable, and has a number of calcareous deposits on its inferior surface. Gall bladder contains about 60 c. c. of bile and about 50 biliary calculi varying from the size of a large grain of sand to that of a pea. Pancreas appears to be normal. Kidneys: Left weighs 170 grams; capsule strips off readily; on section it appears to be normal. Right weighs 180 grams and presents characteristics to its fellow. Bladder, urinary, is slightly distended and contains about 30 c. c. of urine. Organs of generation are normal. Suprarenal capsules: Right weighs 12 grams; left, 15 grams. Both are normal in appearance. Membranes of brain are normal apparently. Brain weighs 1,250 grams and appears to be normal.

F. I.

Pneumonia, abscess of lung—Pericarditis.

J. L.; aged 30 years; nativity, Ireland; admitted to the United States Marine Hospital, Baltimore, Md., December 4, 1899; died December 21, 1899.

History.—He had been drinking excessively for several days, and while intoxicated December 1, 1899, fell overboard, and on the following day suffered from severe pain in the right side. Upon admission he complained of pain in the right side; great weakness and shortness of breath. His temperature was 38° C.; pulse 114; respiration 38 to the minute. Percussion gave dullness over the middle and inferior lobes of the right lung. Auscultation gave bronchial breathing very pronounced over the area of dullness, also broncophony and pectoriloquy. Vocal resonance is increased; also vocal fremitus on palpation.

December 5.—The patient's sputum is slightly blood-stained.

December 11.—Vomited twice during the night. Examination of the heart shows a weakness of the second pulmonic sound.

December 15.—Complained of intense pain in the right side.

December 17.—A peculiar metallic clicking sound, something like that made by water falling drop by drop into a tin basin of small size containing a small quantity water, could be heard most distinctly near the right nipple. The percussion note was somewhat flat over the lower area of the chest and low down over both sides, showing an increase in area of dullness (of the liver and spleen); 800 c. c. of a most foul-smelling yellowish creamery fluid containing small yellow masses about the size of No. 4 shot was withdrawn by aspiration. Microscopic examination of this fluid proved it to contain pus cells and elastic lung tissue in abundance. The patient did not stand the operation well, and nothing further was attempted until December 20, when finding that the patient's condition did not improve after aspiration, it was decided necessary to introduce a drainage tube. After observing all antiseptic precautions, local anæsthesia by oucaine was established in the axillary line between the sixth and seventh ribs on the right side at the site of the former puncture for aspiration. A large trochar and canula were introduced, and about 800 c. c. of the previously described foul-smelling fluid withdrawn. The cavity was washed out with Theirsch's solution and a rubber drainage tube inserted and fixed in place; afterwards iodoform gauze, absorbent cotton, and bandages were applied. The patient's pulse was exceedingly weak and rapid after the operation, and there was every evidence of a rapid breaking down of the right heart. Death occurred December 21, 1899.

Necropsy (*ten hours after death*).—External appearances: Body that of a white male adult, about 5 feet 9 inches in height and fairly well nourished; post-mortem lividity marked; rigor mortis complete; pupils dilated. Circulatory organs: Heart weight after opening, 334 grams. Pericardial sac contained about 60 c. c. of seropurulent fluid. The valves of the heart were competent. The left ventricle is seemingly normal in size and contained a soft dark clot. The right ventricle is somewhat dilated and contained a dark gelatinous clot. The wall of the left ventricle is thickened and firmly contracted; that of the right ventricle thin and flabby. The larynx and trachea are congested. The left lung is greatly congested and weighs 455 grams. The left pleura is adherent to the lung at its apex. The right pleural cavity is obliterated by adhesions. The right lung is almost completely destroyed, leaving merely a large thin sac resembling in shape the former outline of the lung, inclosing a large abscess cavity which had been in great part emptied by the operation described, but still contained some offensive purulent material which was completely shut off from the bronchial tubes by inflammatory changes. The liver is greatly enlarged; edges rounded; substance hard and congested; weight, 2,625 grams. The right kidney is congested and weighs 201 grams. The left kidney weighs 210 grams and is also congested. The spleen weighs 399 grams, is slate colored; substance soft and pulpy. The membranes of the brain are œdematous. The brain weighs 1,485 grams; the lateral ventricles contain about 10 c. c. of thin straw-colored fluid. The veins of the brain and membranes are distended.

T. B. P.,
G. P.

W. T.; nativity, Massachusetts; age, 48; admitted to United States Marine Hospital, port of New York, January 18, 1900.

Family history.—Negative.

Previous history.—Enteric fever when 13 years old.

Present history.—Three weeks ago he was thrown overboard, falling between two vessels. Since then he says he has suffered some pain in chest, and now refers his pain to left side of chest; has some cough, and the expectoration is yellowish in color; appetite, poor; bowels, constipated; tongue, coated.

Examination.—Body fairly well nourished; expansion of chest fair and about equal; breathing, hurried; inspiration and expiration nearly the same; abdomen, distended. Auscultation: At apex of left lung on inspiration the prolonged dry râle is heard; at lower lobe anteriorly and posteriorly, moist râles on inspiration and expiration can be heard. The right lung very much the same as the left, only the long dry râle is heard on expiration. Heart, negative. Percussion: Slight dullness over both lower lobes posteriorly. Temperature 38.6; pulse 104, 3 p. m.; temperature 39.4; pulse 116. Palpation: Vocal fremitus over both lungs.

Treatment.—Milk diet. Hydrag. chlor. mite, 0.3; sodii bicarb., 0.5; fiat in chts. No. 1, sig.; give at 8 p. m., followed at 12 midnight with mag. sulph., 0.20; ammonii carb., 6; tinct. opii camph., 40; mist. glycyrrhizæ comp. q. s. 100; misce. ft. sol., sig. 5 c. c. q. 3 hours.

9th.—Medicine changed; ammonii carb. and digitalis prescribed as follows: Ammonii carb., 2; inf. digitalis, 150; misce. ft. sol., sig. 4 c. c. q. 2 hours; 10 a. m., temperature 37.8, pulse 120; p. m., about the same.

11th.—A. m., temperature 38, pulse 132; p. m., temperature 39.6, pulse 144; larger area of lower lobes of both lungs dull on percussion; difficult and painful expectoration; syr. scillæ, syr. ipecac, aa 10; mist. glycyrrhizæ comp. q. s., 100; misce. sig. 4 c. c. q. 4 hours.

12th.—Delirious; temperature 39.8, pulse 142.

13th and 14th.—Fever less marked, but respiration and pulse show little improvement.

16th.—Worse; temperature 39.2, pulse 144, respiration 58, and tongue very dry. Medication consisted of 15 c. c. of spiritus frumenti every 2 hours in 120 c. c. of milk, and strychnia sulph. hypodermatically.

17th.—Condition about the same.

18th.—Failing rapidly; died at 10.30 a. m.

Necropsy (*twenty-eight hours after death*).—Body of a male 50 years old; rigor mortis well marked; suggillations marked in dependent parts of body; bluish tinge to skin of abdomen; abdomen distended; small nævus about 2½ cm. long by 1 wide, situated 7½ below right nipple; abdomen opened, small amount of subcutaneous fat; arch of the diaphragm found at the sixth rib on both sides; muscles of thorax well developed; anterior mediastinum normal; thymus gland absent; pericardial sac adherent to both lungs; about 25 c. c. of straw-colored fluid present. Heart: Weight, 290 grams; left ventricle a little firmer than the right; left auricle enlarged; post-mortem clot in superior and inferior venæ cavæ; ante-mortem clot in right ventricle;

aortic valves calcareous; heart muscles somewhat softened; pleuritic adhesions of both lungs. Left lung: Weight, 750 grams; solid except one-third of upper lobe (red hepatization). Right lung: Weight, 900 grams; lower lobe solid same as left lung; upper lobe much congested; middle less affected than other parts of lung. Great vessels and nerve trunks of thorax normal; omentum normal; mesentery injected. Spleen: Weight, 135 grams; small, soft, and friable. Right kidney: Weight, 103 grams. Left kidney: Weight, 130 grams; apparently normal. Bladder and urinary organs apparently normal; testicles normal; duodenum and intestinal tract distended with gas. Stomach, gall ducts, gall bladder, and pancreas normal. Liver: Weight, 1,535 grams; capsule adherent; bluish tinge to the most dependent portions of the right and left lobes; right lobe indented by the ribs; on section fatty changes are shown; tissue tears easily; mesenteric glands small. Abdominal vessels negative.

G. A. C.
G. W. S.

P. C.; native of Ireland; age, 34; was admitted to the Addison Gilbert Hospital, Gloucester, Mass., March 2, 1900, and died March 4, 1900, at 6.30 a. m.

History.—Patient had been sick on board a fishing schooner at sea one week without medical attendance. He complained of having had a chill at the beginning of his sickness. Pain all over the body and in his bones. Had taken little nourishment and had had very little sleep for a week.

March 2.—Patient was brought to the hospital in the evening. Physical examination shows marked absence of respiratory murmur over lower lobe of right lung; also marked dullness over same locality. Headache, dry tongue, cough, marked dyspnœa, signs of congestion in both lungs, great prostration; expectoration was green and thick and tinged with blood. Pulse, 120; temperature, 40° C.; respiration, 50. Ammon. carb., gr. xvi; tinct. digitalis, gts. xlviii; syr. ipecac, ʒi; syr. simpl., q. s. ad., ℥ii. Sig.: Teaspoonful every two hours. Strych. sulph., gr. $\frac{1}{30}$ (hypo.), as necessary; spts. vini. gall. ℥ss. to ℥i, as necessary. Liquid beef peptonoids ʒii every four hours. Beef juice and malted milk. Turpentine stupes to chest and back.

March 3.—Patient seemed a little more comfortable. Temperature, 39° C.; pulse, 90; respiration, 50, but movements easier. Same treatment continued. Patient did not vomit. Toward evening and through the night patient became weaker and very restless. Pulse, 130; respiration, 60. Pulse weak, respiration stertorous. Stimulants, nourishments, and counter irritation were freely used, but patient passed away at 6.30 a. m., March 4, 1900.

Necropsy (*ten hours after death*).—External appearances: Body poorly nourished; rigor mortis marked; very little post-mortem lividity. General congestion of contents of skull, otherwise normal. The heart and pericardium are normal. Recent adhesions in right pleural cavity. Lower lobe of right lung completely solidified; upper lobes congested, as was also the left lung. Liver slightly enlarged and congested. Small and large intestines normal. Gall bladder and ducts normal. Spleen and both kidneys slightly congested, otherwise normal. Ureters, normal. Generative organs, normal.

E. B. H.

PNEUMONIA OF LEFT LUNG, WITH CHRONIC TUBERCLE IN RIGHT.

F. S.; age, 49 years; nativity, Massachusetts; color, white; admitted to United States Marine Hospital, Baltimore, Md., on the afternoon of February 14, 1900; died at 4.30 p. m. February 16, 1900.

History.—When admitted he stated that on February 10 he was taken suddenly with a chill, followed by fever, attended with pain in the left infra-mammary region and cough with expectoration. In addition to the symptoms complained of, he now suffers from dyspnœa. His respiration is 42; pulse, 140; temperature, 48° C. Bronchial breathing is heard all over the chest, but is especially marked on the left side. There is a pinkish tinge to the sputum.

February 15.—Morning temperature, 39.6° C. There is dullness on the right side over the whole area above the the fifth intercostal space and a hyperresonant note below the line of dullness. Vocal resonance is increased somewhat over the dull area and fine crepitant râles can be heard here. There is dullness over the base of the left lung. Vocal fremitus is increased over the inferior lobe of the left lung. Auscultation also reveals some friction sounds in the left axillary line from the fourth to sixth ribs, also coarse and fine crepitant râles and some mucous râles over the anterior and posterior aspect of the inferior lobe of the left lung. There is much cough, with free expectoration of prune-juice sputum. A stimulant plan of treatment was adopted at the beginning and maintained throughout. An ice bag was applied to the left side on the second day of the disease, and continued. It gave some relief to the pain, seemed to induce sleep, and reduce the temperature somewhat. February 16, at 2 p. m., it was noticed that cyanosis was rapidly developing and dyspnœa was increasing. At 2.35 p. m. strychnine sulphate ($\frac{1}{20}$ gr.) was given, and he was stimulated freely with milk punches. Death ensued at 4.30 p. m.

Necropsy (*twelve hours after death*).—Post-mortem lividity well marked; rigor mortis well marked General nourishment fairly good. Circulatory organs: Heart somewhat enlarged and contained a considerable amount of fat on the exterior surface; weight (after opening), 340 grams. Pericardial sac contained an excess of fluid. Heart cavity: Left ventricle contained a "chicken-fat" clot, extending well into the aorta. Right ventricle contained fluid blood, also a "chicken-fat" clot extending into the pulmonary arteries. Right auricle contained "chicken-fat" clot which extended far up into the superior vena cava. Respiratory organs: Left lung was entirely solidified, with the exception of the upper third of the superior lobe. Weight of left lung, 1,800 grams; its surface was covered with a fibrinous exudate, and was adherent to the pleura in places. Right lung weighed 470 grams; its apex contained little tuberculous nodules, which were hard and calcified. The inferior and middle lobes were somewhat spleenified. The lung was torn upon removal, being bound down by the pleura. Pleural cavity contained an excess of fluid. Liver: Weight, 1,990 grams. Two ciatrices were observed on the inferior border of the right lobe; also two on the superior border, one of which was very large. There was also observed a cicatrix on inferior portion of left lobe, near the border. Kidneys were congested; weight of left, 145 grams; right, 135 grams. Spleen: Pale in color; flabby and granular. A cicatrix was observed on inferior portion of the inner surface. The organ contained small globular bodies of pearl-like hardness, scattered through its substance. On outer surface of capsule a small bony plate was observed, marking the sight of an old cicatrix. Weight, 1,335 grams. Genito-urinary organs: Penis—foreskin has grown over glans penis, leaving a pin-point opening for the escape of urine; bladder was contracted, its mucous membrane thickened and chronically inflamed.

T. B. P.
G. P.

PERICARDITIS WITH ABSCESS OF LEFT HALF OF CEREBELLUM.

G. L.; aged 63; nativity, Canada; admitted to the United States Marine Hospital at Mobile, Ala., April 14, 1900; died April 24, 1900, suffering from lobar pneumonia and pericarditis.

History.—Patient enjoyed very good health until four weeks prior to entering the hospital. At this time he had a light chill, with symptons of severe coryza. Did not think it necessary to seek medical advice and continued to work until three days before entering hospital. About this time he became so troubled with dyspnœa that he could not sleep, and chiefly on account of the distress caused by this symptom he applied for relief. Observations made at intervals during the time patient remained in hospital revealed the following physical signs and symptoms: Shortly after admission spasmodic twitchings were noticed in the muscles of upper and lower limbs, which symptom later disappeared; patient was at first rational, but toward termination of illness passed into stupor, followed by coma, ending in death. Œdema of right lower extremity appeared about seventy-two hours before death, and remained confined to the one limb. Pulse ranged from 80 to 130, at first regular, but later becoming intermittent; respirations labored, accelerated, finally becoming stertorous. Mucous râles heard over both lungs; presence of distinct pericardial murmur noted. Area of cardiac dullness increased, slight dullness over lower portions of both lungs, and marked dullness over upper portion of left. Patient has never complained of pain. Temperature, as recorded by nurse, remained normal throughout.

Necropsy (*fifteen hours after death*).—Body that of a man apparently 60 years of age; only slightly emaciated; height about 1.65 meters; weight about 62 kilos; rigor mortis well marked in lower jaw, upper and lower limbs; pupils equal in appearance and slightly dilated; purulent discharge, tinged with blood, escapes from mouth and nose; sudamina still present over chest and abdomen; post-mortem lividity well marked in posterior portion of body and limbs; skull very thin; dura mater normal in appearance; considerable straw-colored fluid in subdural space; vessels of pia injected; weight of cerebrum, 1,170 grams; on section has normal appearance; weight of cerebellum, 180 grams; sections of right half give normal appearance; left half of cerebellum does not admit of section, but presents a large abscess involving more especially middle and posterior portions, which parts are reduced to pultaceous mass. Some congestions of membranes of base of brain and upper part of cord. Upon opening abdomen a small quantity of fluid is seen in peritoneal cavity; abdominal walls and omentum contain a small quantity of fat; abdominal muscles pale and flabby; colon distended with gas and contains some fecal matter; small intestines distended with gas; stomach empty; appendix normal and rather short; no adhesions below diaphragm, arch of which is between sixth and seventh ribs. Cavity of pericardum contains 250 c. c. of fluid, large flakes of fibrin cover its visceral layer giving it a roughened appearance; wall of right ventricle normal in thickness, muscular fibers pale; wall of left ventricle greatly hypertrophied, muscular fibers pale and somewhat soft; wall of right auricle normal in thickness; wall of left auricle hypertrophied, but much less so than that of ventricle; cavities of right auricle and ventricle contain ante mortem clot extending into pulmonary artery; cavities of left auricle and ventricle empty, no dilatation; moderate amount of fluid in both pleural cavities; left lung is free from adhesions and weighs 570 grams; lower lobe crepitates and is œdematous; upper lobe is in state of complete hepatization; right lung slightly adherent below and posteriorly to side of chest and diaphragm; weight, 1,092 grams; crepitates throughout; on section a thin frothy fluid exudes; entire lung is œdematous. Liver weighs 1,650 grams and is congested; gall bladder is contracted; lower portion is sacculated and contains oval-shaped stone which is almost encapsulated and weight of which is 5 grams; small remaining upper portion contains whitish opaque fluid, but no bile. Left kidney weighs 90 grams; capsule adherent substance pale; kidney markedly contracted; right kidney displaced upward; weighs 75 grams; condition similar to that of left; suprarenal capsule apparently normal.

B. J. L.
W. P. McI.

P. B.; colored seaman; aged 24 years; nativity, Kentucky; admitted to the United States Marine Hospital, Cincinnati, Ohio, March 28, 1900; died April 24, 1900.

History.—Family and previous histories, negative. Three days ago was taken with sharp pain in right side, no history of chill accompanying; cough dry and ineffective. Upon admission patient's breathing was rapid and labored, 56; countenance, anxious; pulse 120, but fairly strong; temperature, 40.3°; sputum was blood tinged; physical examination reveals absolute dullness over entire lower lobe of right lung, and all the other signs of consolidation nicely shown; crepitant rales present. The pneumonia terminated by crisis upon the eighth day. Patient showed improvement for ten days, excepting slight dyspnœa, and the consolidation was slow in clearing up. Patient then began having fever, ranging between 38 and 39; dyspnœa increased, and the dullness upon the affected side became more pronounced. No bulging of intercostal spaces was noticed, but from the signs present an abscess was suspected. The patient died suddenly April 24, 1900.

Necropsy (*ten hours after death*).—Post-mortem rigidity was marked; lower extremities slightly œdematous. Upon opening the chest the pleural cavity was found to contain about 1,000 c. c. of thick and creamy pus; pleural membranes thickened. Collapsed abscess cavity found in right lung; almost the entire lung was in a stage of gray hepatization; weight, 900 grams. Left lung was normal; weight, 630 grams. Right chambers of heart markedly distended with firm coagula; weight, 480 grams. Liver and spleen considerably congested; weights, 2,580 and 180, grams; other organs found in a normal condition.

H. S.
J. M. E.

J. B.; aged 35 years; nativity, Tennessee; was admitted to the United States Marine Hospital, Evansville, Ind., February 26, 1900; died March 2, 1900.

History.—Patient had been sick four days prior to admission with cough, pain in the right side, nausea, and some fever. On February 26, a very cold day, he was removed from his vessel in midstream, in an open boat, brought ashore, and sent to the hospital. On admission his temperature was 38°; pulse, 100; respiration, 40. Examination showed diminished movement on right side. Vocal fremitus increased. Percussion, dullness below the fourth rib anteriorly and posteriorly. Auscultation revealed absence of the respiratory murmur below the level of the fourth rib, with crepitant and sibilant râles in the upper lobe of the right lung. The characteristic rusty sputa is present.

February 27, 1900.—Temperature, 39°; pulse, 108; respiration, 40. The upper lobe of the right lung is involved and respiration has become embarrassed.

February 28, 1900.—Condition the same, with intervals of delirium.

March 1, 1900.—Condition of lung remains the same. Heart action is much weaker and delirium more marked. The treatment employed was supporting and stimulating, but despite this the action of the heart continued to become weaker and he died March 2, 1900, at 8.30 a. m.

Necropsy (*seven hours after death*).—The body is that of a well-developed, well-nourished adult, colored male. Rigor mortis not marked. The skull cap, brain case, sinuses, vessels, membranes, and brain are normal. Weight of brain, 1,500 grams. Thorax: Pericardium normal in appearance and contains 50 c. c. of serous fluid. Heart weighs 500 grams. The chambers are filled with clots. The valves are competent. The left lung and pleura are normal in appearance. Weight of left lung, 480 grams. The right pleura is congested. The entire right lung, with the exception of a small area at the apex, is consolidated, covered with a firm layer of fibrin, and adherent to the pleura. On section the upper lobe of the lung is in the stage of red hepatization, the middle and lower lobes in the stage of gray hepatization, with numerous areas of purulent infiltration. Weight of right lung, 1,230 grams. The great vessels and nerve trunks are apparently normal. Abdomen: Omentum is normal. Spleen normal; weight, 120 grams. Kidneys enlarged. Capsule strips readily. Right weighs 250 grams; left, 280 grams. Bladder is normal and contains 50 c. c. of urine. Small intestine distended with gas. Gall bladder contains a small amount of fluid. The ducts are patent. The liver appears normal on section. Weight, 2,250 grams. Pancreas normal. Weight, 125 grams. The small and large intestines and the great vessels are normal. The spinal cord was not examined.

W. A. K.

ŒDEMA OF LUNGS.

Osteo-arthritis.

J. R.; originally admitted to the United States Marine Hospital, Stapleton, Staten Island, November 8, 1890, and readmitted December 9, 1896, for osteo-arthritis, making nine years one month and eleven days in hospital. Died December 19, 1899. Had been treated by usual methods for past three years. At times there would be exacerbations of the condition. About twenty-four hours before death patient was quite bright and answered all questions intelligently. The evening before death patient was found in comatose condition, with weak pulse and Cheyne-Stokes respiration. No evidence of nephritic trouble had ever been observed. Urine negative. About 11 p. m. there was some stertorous respiration. Stimulants with strychnia were given. Patient died next morning about 9 o'clock.

Necropsy (*twenty hours after death*).—Body, male; apparently about 45 years old; well nourished. Suggillations well marked. Pupils moderately dilated. Subcutaneous fat large in amount. Incision from interclavicular notch to pubic symphysis. Œdema of extremities. Deformity of fingers. Anterior mediastinum and remains of thymus gland negative. Fluid blood in left pleura. Marked adhesions probably of long standing in right pleura. Pericardium normal. Heart contracted and contains large amount of dark clotted blood, which extends into inferior vena cava; weight, 445 grams. Valves all normal. Lungs: Left lung, 625 grams. Markedly congested and œdematous. Right lung adherent to pleura and to diaphragm; weight, 645 grams. Marked congestion. Marked adhesion to chest wall and diaphragm. General œdematous condition. Diaphragm normal. Great vessels and nerve trunks normal. Spleen: Weight, 125 grams; apparently normal. On section quite friable. Kidneys: Left kidney, 140 grams. Chalky deposit in pyramids of kidney; cirrhotic; cortical layer very thin. Right kidney: Weight, 145 grams; presents same general conditions as left kidney. Capsule of both kidneys nonadherent. Liver: Weight, 1,455 grams; reddish-gray appearance; quite friable; gall bladder distended with fluid bile; normal. Stomach distended with gas; rugæ poorly marked; contains small amount chocolate-colored material; greater curvature markedly congested and ecchymotic; walls thin; veins distended; inner surface quite smooth. Intestinal canal normal. Bladder normal and distended with urine. Gall ducts normal.

C. W. V.
G. W. S.

Congestion.

E. E.; nativity, Norway; age, 28; admitted to United States Marine Hospital, port of New York, October 19, 1899; died, October 26, 1899.

Family history, negative; previous history, had inguinal hernia and was operated on in Mobile, Ala.; had gonorrhea and chancre. Says he has not had any venereal disease during the last year and a half. Present illness: First noticed a small swelling in right groin about sixteen days ago, which has been painful and which has gradually enlarged; more painful on exertion. Had chancre about a year and a half ago, which was followed by secondaries.

Physical examination.—Macular and papular eruption of coffee color scattered over body and limbs. Post cervical, epitrochlear, and inguinal glands enlarged. Has mucous patches on buccal mucous membrane. Glands in right groin are considerably swollen, painful, and polyganglionic.

Treatment.—Taylor's mixed treatment, 5 c. c. three times a day after meals. Advised removal of glands in right groin, as it was evident that they were suppurating. Field of operation prepared for operation.

October 20, 1899.—Etherized. Parts thoroughly prepared by scrubbing with tincture of green soap, alcohol, and ether, and flushed with Thiersch's solution. Incision parallel to Poupart's ligament and about 3 inches in length made over center of tumor; infected glands dissected out and found to be suppurating, especially superficial ones; femoral lymphatic glands found enlarged and inflamed, and in order to enucleate them it was necessary to make a second incision from lower edge of first one parallel to course of femoral vessels and about 3 cm. in length. After enucleating all enlarged glands, bleeding vessels were ligated, wound flushed out with Thiersch's solution and euformol 1 in 8, dusted with iodoform powder, and packed with iodoform gauze. The second incision was completely closed by three interrupted silkworm sutures and outer two-thirds of first incision by four interrupted silkworm sutures. Femoral vein was exposed while dissecting out deep glands, but was not cut.

October 21.—Temperature in morning, 39; in evening, 39.4; pulse in morning, 84; in evening, 96. Did not complain any, but was given magnesium sulphate, 20, and quinine sulphate, 1.32, three times a day.

October 22.—Temperature at 8 a. m., 38.4; pulse, 96. Sweating some; has slight headache. Bowels moved freely. Temperature 8 p. m., 37; pulse, 84.

October 23.—Temperature at 8 a. m., 37; pulse, 80. Feeling good. Dressed; old dressings removed and were not particularly dirty; wound was clean, and replaced iodoform dressing after irrigating wound with bichloride, 1–5,000 solution. Usual external dressings of iodoform gauze, sterilized gauze, cotton, and bandages applied. Given magnesium sulphate, 20.

October 24.—General condition fair. Did not complain of any untoward symptoms until toward evening, when temperature rose to 41.4; pulse, 86; sweating (quit some).

October 25.—During last night vomited several times; was given calomel last evening, and bowels moved freely. Perspired freely; tongue coated; complained of pain in epigastrium and of some tenderness in left hypochondrium. Mouth and tongue dry. Vomiting continued during day, and was given bismuth, cocaine, and morphine without much relief. Morphine repeated toward morning, and vomiting ceased after its second administration. General condition grew worse rapidly; face became pinched; expression anxious; sweat considerably, and despite constant stimulation pulmonary œdema set in, and, heart failing, he died at 8.45 a. m. October 26, 1899. Temperature on evening of October 25, 35; pulse could not be counted. Temperature on October 26, 1899, 34; pulse rapid and feeble; respiration rapid and shallow. Lips and finger tips cyanosed.

Necropsy (six hours after death).—Body that of a male apparently about 30 years of age. Rigor mortis well developed. Suggillations on dorsum are marked. Skin of face, ears, neck, and scrotum is purplish in tinge. Body is fairly well nourished, and muscular development, especially of shoulders and forearms, remarkable. Abdomen is distended and tympanitic. Pupils moderately dilated and eyes clear. There is a frothy fluid escaping from mouth and nose. Wound of operation fairly clean and beginning to granulate. There is a slight clot below Poupart's ligament; has a scar where operation for radical cure of left oblique inguinal hernia was performed. Brain weighs 1,320 grams. Calvarium and brain case normal. Sinuses and membranes are congested, pia mater being markedly so. Whole brain is congested. Incision was made from the supraclavicular notch to symphysis pubis. On opening the abdomen, find omental vessels markedly congested. Omentum reddish and fat; fair in amount. Intestines contain much gas and fluid, and the vessels are injected, giving the whole a reddish appearance. Subcutaneous fat fair in amount. Muscles of chest well developed. Anterior mediastinum normal. Thymus remains normal. Heart, 320 grams. Is in normal position and about normal size. Left ventricle is contracted. Right ventricle is distended and contains dark fluid blood. Vessels on anterior surface of heart are injected and covered by a thin layer of fat. Left ventricle contains a dark boggy clot. Right auricle is distended with dark fluid blood and contains a small clot. Tricuspid orifice admits two fingers. Left auricle contains small chicken-fat clot. Great veins of neck and thorax are distended with dark fluid blood. Aorta is small in caliber—about one-half inch in diameter—but its walls are apparently normal. Tricuspid valves are competent by hydrostatic test and cusps are normal. Aortic valves apparently normal. Mitral valves seemingly normal. Heart muscle red and of good quality. Pericardium is smooth and glistening and contains about 25 c. c. of a pale, straw-colored fluid. Left pleura normal. Left lung, 365 grams; shows reddish, mottled gray appearance on its external surface; it floats, crepitates throughout, and shows no adhesions. Cut section shows marked congestion and a frothy exudate; lower lobe is the most congested and shows marked œdema. Right pleura normal. Right lung, 355 grams. External surface is bright red, mottled with gray; this lung is not so congested as the left one, it floats and crepitates. Lower lobes and dependent portions are congested, and a cut section gives a frothy exudate. Thoracic aorta is of small diameter, but apparently normal. Great vessels and nerves of thorax are normal, apparently. Diaphragm extends to between fourth and fifth ribs. Its veins are injected, but otherwise it seems normal. Omentum shows great vascular congestion. Spleen weighs 215 grams, and is apparently normal in position, size, and consistency; cut section reddish brown and normal. Left kidney, 120 grams; small; capsule glistening and nonadherent. Vessels of external surface are injected. Markings on cut section fairly distinct; cortex is pale and yellow. Right kidney, 118 grams; normal position; capsule dull gray, and nonadherent surface is congested; cut section shows markings fairly plain; cortex is more yellow than on left side. Bladder contains small amount of urine and its walls are normal. Prostate normal. Seminal vesicles normal. Testicles normal except where left one shows beginning hydrocele. Urethra normal. Penis shows indurated scar on mucous membrane of prepuce near fraenum. Rectum contains small amount of formed feces. Stomach is distended much with gas and contains yellowish fluid and coagulated milk. Duodenum is normal and gall duct patent. Pancreas, 70 grams; normal. Mesentery congested. Liver, 1,330 grams; external surface smooth; vessels injected, but consistency is normal; cut section shows small pale-yellow areas throughout. Intestines (small) congested; intestines (large) veins congested; contain fluid feces of yellow color and some gas.

C. E. D.
G. W. S.

MALIGNANT MALARIA.

Algid form.

A. G.; age, 50; nativity, Italy; admitted to United States Marine Hospital ward of St. Francis Xavier Infirmary, Charleston, S. C., on September 7, 1899, at 2.15 p. m., and died forty minutes after admission.

History.—Patient had received treatment for malarial fever in contract hospital here from January 19, 1899, to March 9, 1899. The history of the present attack was as follows, obtained from his family, as he himself was unconscious when admitted, and died without regaining consciousness: On September 3 was attacked with fever; on the 4th had a severe chill followed by fever and sweating. This was repeated on the 5th and 6th and, it is believed, on the day of admission.

Necropsy (*nineteen hours after death*).—Post-mortem rigidity marked. Body in good condition. Very slight emaciation. Pupils normal. Skull cap, meninges, and brain normal. Lungs apparently normal. Left lung adherent in one spot to diaphragm. No fluid in pleural cavity and pleura not inflamed. Pericardium normal. No fluid in pericardial cavity. Heart normal. Valves competent. Kidneys normal to visual examination. Liver slightly enlarged and normal to sight. Peritenoum normal. Omentum normal. Mesenteric glands not enlarged, about 125 c. c. Dark-colored fluid in abdominal cavity. Intestines moist and somewhat congested and bile stained. Gall bladder contained about 45 c. c. of bright yellow bile. Spleen was somewhat enlarged and disorganized, being extremely friable, so that it could not be removed without rupturing it, very dark colored, nearly black, looking almost like a mass of clotted venous blood. Pancreas normal to sight. Stomach empty. Intestines contained some bright yellow semisolid fecal matter; no ulcerations apparent. Bladder contained about 30 c. c. of straw-colored urine. Weight of organs: Brain, 1,390 grams; liver, 1,900 grams; right lung, 720 grams; left lung, 630 grams; right kidney, 170 grams; heart, 360 grams.

It was apparent that the man died from malarial infection, probably in the algid stage.

F. F. S.
J. V.

MALARIAL FEVER.

(*Remittent.*)

M. O.; age, 42; nativity, Norway; admitted to hospital at Norfolk, Va., October 28, 1899; died December 5.

The patient was admitted at 6.30 p. m. October 28; no history could be obtained, as he was sent from a vessel at a distance and without an attendant. Patient was practically unconscious, and only axillary temperatures were taken during illness. At 7 p. m. on day of admission temperature was 37.66, pulse 77, and respiration 24. He was given a warm sponge bath and put to bed, and at 9 p. m. his temperature was 38.33°, pulse 112, and respiration 28. Respiration throughout the night was labored, and he had great difficulty in swallowing; was in a stupor nearly all the time; morning of November 2 patient began to expectorate a thick muco-pus very offensive in odor. On November 6 the parotid, submaxillary, and lymph glands became swollen, and on November 10 the abscess was incised and a vast quantity of pus evacuated, which contained staphylococci and saprophytic bacteria. The patient complained of constant headache. On December 5 patient in a comatose condition. Catheter passed, but very little urine obtained. Coma vigil at 11.30 a. m., and muscular twitching perceptible at 12.30 p. m. At 1 p. m. patient seemed to be conscious of pain, his features were pinched and drawn, and he died at 4 p. m.

Necropsy (*eighteen hours after death*).—Rigor mortis; body emaciated. Brain, convolutions normal. Dura mater normal over upper surface of brain; over anterior surface of petrous bone, discolored and softened and contained an aperture of the size of a quarter of a dollar containing 30 c. c. of pus, the whole lobe being softened. Base of brain from optic chiasm backward into spinal canal over pons varolii covered with pus. Ventricles, both hemispheres filled with watery pus. Anterior surface petrous portion of temporal bone discolored and softened, showing abscess to have been caused by disease of middle ear, extending through the upper walls of the middle ear. Canal of the petrous portion of the temporal bone softened and containing pus. Mediastinum contained pus, which showed staphyloccoci and streptococci. Pericardium normal. Heart slightly dilated. Right pleura adherent, posteriorly and below both lungs œdematous and congested. Spinal canal contained pus. Spleen, normal in size and very dark. Liver, large and hard, showing commencing cirrhosis. Both kidneys light in color, marking indistinct in some parts and exaggerated in others. Intestines, normal.

E. E. F.

Remittent fever and acute catarrhal inflammation of the gall ducts.

J. H., aged 38; nativity, Ireland; admitted to United States Marine Hospital, port of New York, August 25, 1899; died September 2, 1899.

Family history.—Father living; mother died of heart disease twenty-eight years ago; three sisters living; one sister dead; three brothers living.

Previous history.—Was treated for one month six years ago at this hospital for rheumatic fever. Smokes, chews, and drinks.

Present history.—Eleven days ago, when one day out from Habana, Cuba, began to feel badly; says his head troubled him a great deal, and was not quite conscious of everything that was going on about him. The steward on board ship gave him some medicine, but it did him no good. At present has temporal and frontal headache, but it is not so severe as it has been.

Physical examination.—Inspection: Skin has a sallow or yellowish cast, around nose has appearance of being cyanosed; patient stares blankly ahead of him and utters an occasional grunt or groan. Right conjunctiva is congested; slight coating on lower lip; abdomen distended; has petechial rash over chest and abdomen; talks to himself. Palpation: Skin dry and hot; liver plainly felt; tenderness, especially over abdomen. Auscultation: Heart and lungs, negative. Urine high colored; high specific gravity; contains large quantity of albumen; hyaline and epithelial casts. Temperature, 38°; pulse, 83; respiration, 26.

Treatment.—Milk diet, stimulants, whisky, and strychnine. Right conjunctivæ irrigated with boracic acid solution, calomel, soda, bicarbonate, podophyllin aa 0.01 t. i. d.; soda phosphate, 5, night and morning.

August 26, 1899.—Slept well last night; urinated at 2 a. m. and while at stool; bowels moved three times during night. Complains this morning of pains in abdomen, and had pain during night. Stools were semisolid and yellow in color. Says he had diarrhea for three days previous to admission to hospital; has macular rash over thighs; tenderness over liver and right iliac regions marked; pulse, soft;

tongue dry and yellow coated; lips dry and cracked. Quinine sulph., 1.32 every six hours. Temperature at 8 a. m., 37.6°; pulse, 80. Temperature at 8 p. m., 38.4°; pulse, 94.

August 27, 1899.—Patient asleep. Bowels moved, semisolid yellow stools. Only urinates when at stool. Passes but small quantity of urine. Appetite, fair. Complains of pains over body and limbs. Temperature at 8 a. m., 37.8°; pulse, 80. Temperature at 8 p. m., 37.8°; pulse, 78.

August 28.—Slept well; at 8 p. m. yesterday vomited a large quantity of partially digested food of yellow color. Feels weak. One stool, semisolid, small quantity. Temperature at 8 a. m., 37°; pulse, 70. Temperature at 8 p. m., 37°; pulse 70.

August 29.—Jaundice more marked this morning. While taking medicine expectorated bright-red blood. Gums soft and bleeding. Had small stool, gray color, thick with mucous. Any exertion causes marked tremor of muscles of hand. Both conjunctivæ markedly conjested. Had fairly good night, but did not sleep much. Temperature at 8 a. m., 37.2°; pulse, 78.

August 30.—Condition very much worse. Yellow appearance of conjunctivæ, tongue and skin deepening. Gums soft and bleed easily. Tougue and lips covered with blood. Stools, clay colored. Has marked tenderness all over liver. Passing but very small quantity of urine, about 440 c. c. in twenty-four hours. Vomiting frequently, especially on taking medicine. No blood in vomit. Given oil olivæ 50 c. c. this a. m., and repeated this p. m. Potassa acetate, potassa citrate, aa 20, aqua ad q. s. 100. M. sig.: Five c. c. every four hours. Kidneys, dry cupped. Bowels fairly active; no blood in them. Temperature at 8 a. m., 37.4°; pulse, 74. Temperature at 8 p. m., 37.2°; pulse, 72.

August 31.—Urine examined again and large quantity of albumen found. Jaundice more marked. Vomiting continued. Mustard plaster placed over epigastrium. Oleum tiglii 2 drops in white of egg this morning. Hot pack this morning and again this afternoon. One-half hour before given hot pack given pilocarpine hydrochlorate 0.01 hypodermically. Mentally dull and heavy.

P. m.—Perspired freely during and after packs. Bowels moved, small semisolid gray stool. Temperature at 8 a. m., 36.8°; pulse 70; at 8 p. m., 36.6°; pulse, 100.

September 1, 1899.—Passed only 24 ounces of urine in last twenty-four hours. Mentally brighter after packs. Had considerable twitching of muscles of face yesterday, and twitching extended to other muscles of body. To-day has no muscular twitchings. Sweats freely during and after packs, which were continued. Still has hemorrhage from mouth and gums. Vomiting continues. Pulse fairly high tensioned. Receiving infusion digitallis 15 c. c. every four hours. Temperature at 8 a. m., 36.8°; pulse, 80; at 8 p. m., 36.6°; pulse, 88. Given hydrargum chlor. mite 0.3 this a. m.

P. m.—General condition worse. Not vomiting as much as he did. Respiration rapid and labored, pulse weak. Hemorrhage from mouth continues. Bowels and skin active. Patient very restless, dull, and apathetic. Condition gradually grew worse, given stimulation, but he died at 6 a. m., September 2, 1899. Temperature at 4 a. m., 36.8°; pulse, 64.

Necropsy (*nine hours after death*).—Body of male apparently aged 50. Conjunctivæ congested and jaundiced, eyes glazed. Body well nourished, intensely yellow, and has purpuric spots all over body. Suggilations well marked, especially over dependent portions of body. Rigor mortis fairly well marked. No external marks of violence. In deference to wishes of friends brain not examined. Incisions made from supra sternal notch to symphysis pubes; large amount of subcutaneous fat, and it was stained yellow. Anterior mediastinum negative. Thymus gland not found. Heart: Normal position, all its tissues deeply stained yellow; left ventricle contracted, walls of it thickened, contains some fluid blood; left auricle contains some chicken-fat clot; mitral valve competent, shows small calcareous plates along edges; aortic valve competent; right ventricle contains fluid-blood and large amount of chicken-fat clot. Pericardium: Smooth, glistening, and contains about 3 c. c. of pericardial fluid, which is of dark oil-stained color. Lungs: Right lung, weight, 635 grams, external surface pigmented, deep yellow in color, crepitates, floats; cut section shows slight serous exudate. Left lung: Weight, 618 grams; normal position, external surfaces markedly pigmented, crepitates, floats; cut section shows considerable serous exudate; lung tissue deeply stained yellow; lung congested. Right pleuræ: No fluid in cavity; marked adhesion to lung posteriorly; adhesions break easily; left pleuræ negative; great vessels and nerve trunks negative; diaphragm normal, excepting for yellow color. Spleen: Normal position; weight, 208 grams; feels hard; on superior surface, near external border, is a hard calcareous plate on a depression on surface of spleen; spleen deeply yellow in color and somewhat anæmic; on section, cuts hard. Right kidney: Normal position, imbedded in considerable fat; weight, 270 grams; is firm; capsule nonadherent and peels easily;

cuts hard; markings fairly distinct, excepting at center, where malpighian body is almost obliterated by granular and fatty material; tissues deeply stained yellow; right supra renal capsule stained yellow, otherwise negative. Left kidney: Deeply stained yellow; granular and fatty changes same as in other kidney; normal position, large in size, firm, capsule nonadherent; left supra renal capsule negative; urinary bladder stained yellow; seminal vesicles stained yellow, but otherwise normal; testicles normal; penis normal; urethra normal; rectum empty, walls of it are deeply bile-stained; mucous membrane shows marked congestion and prune-juice discoloration; duodenum shows yellow staining, considerable mucus on mucous membrane, congested, and has prune-juice discoloration; no ulceration found. Stomach: Normal position, not enlarged, practically empty; mucous membrane shows congestion of its vessels and prune-juice discoloration, evidently from hemorrhage into its walls; is jaundiced; pyloric orifice small, scarcely admitting end of little finger; wall of stomach feels much thicker than it should be and mucous membrane is deeply congested here; gall bladder empty. Liver: Large, normal position, weight 2,440 grams, hard, somewhat anæmic, deep yellow in color; feels hard and cuts almost like fibrous tissue; no areas of necrosis. Pancreas: Weight, 135 grams, normal position, easily removed; feels very hard and cuts like fibrous tissue.

J. M. K.
G. W. S.

Intermittent.

J. D.; aged 49 years; nativity, Missouri; was admitted to the United States Marine Hospital, St. Louis, Mo., August 10, 1899, and died August 12, 1899.

History.—The patient came to this hospital in the St. Louis City Hospital's ambulance on the morning August 10, 1899, in a dazed condition. Says he has had chills and fevers for some time. He was brought from his boat in the city ambulance to this hospital and asked for treatment. No further information could be obtained from him. Became more confused, dazed, and resisting. Considered to be suffering from malarial toxæmia. Ordered to bed; malarial and stimulating treatment instituted. Later in the evening wandered from bed and ward; found on lawn eating grass; returned to bed. Received sedative hypodermatically. Remained quiet rest of night. On morning of August 11 continued to refuse nourishment and medicine, ejecting them from the mouth. Nutrient enemata ordered, patient still resisting. Defecated every time rectal tube was introduced; latter reintroduced, patient restrained, and nourishment introduced high up and very slowly. Acid solution of quinine now given hypodermatically, likewise whisky and strychnine every three hours. In afternoon of August 11 his temperature increased to 40.2°. Ice bath given, followed by good reaction. In evening temperature was 37°. During the night and early in morning of the 12th hypodermatic medication and stimulation was continued at regular intervals, but patient never rallied, and died at 8.05 a. m. August 12, 1899.

Necropsy (*seven hours after death*).—Height, 169 cm.; body fairly well nourished. Calvariun, three-fourths cm. thick. Old depressed fracture anterior and internal to right parietal eminence. Inner table considerably depressed, the brain showing the effects of the pressure of this fragment. Excess of cerbro-spinal fluid, opacity of pia matter. Brain: Weight, 1,275 grams; measurements, 25½ by 25 by 8½ cm.; brain normal. Right lung: Weight, 610 grams; measurements, 27½ by 21½ by 8 cm.; generally adherent. A few tubercular nodules in right apex; color, dark red externally, more so in lower portion. Hypostatic congestion in lung. Left lung: Weight, 555 grams; measurements, 24½ by 14 by 9 cm.; color, same as in other lung. Some scattered tubercles in apex. Heart: Weight, 180 grams; measurements, 15 by 10 by 6 cm.; normal. Left ventricle, 1½ cm. Right ventricle, three-fourths cm. Spleen: Weight, 370 grams; measurements, 18 by 12 by 4½ cm.; enlarged, friable, and congested; color, dark red; 50 c. c. of fluid in pericardial sac. Abdominal wall, 1½ cm. thick; no foreign bodies; intestines, grayish green. Right kidney: Weight, 120 grams; measurements, 12 by 8 by 4 cm. Cortical substance 1 cm. thick; normal. Left kidney: Weight, 170 grams; measurements, 12 by 8 by 4 cm.; cortical portion, 1 cm. Liver: Weight, 2,250 grams; measurements, 27½ by 21½ by 8½ cm; normal; 105 c. c. of bile in gall bladder. Appendix very short.

J. M. H.

Intermittent.

C. A.; aged 26; nativity, Kentucky; admitted to the United States Marine Hospital, Evansville, Ind., August 10, 1899; discharged improved at own request August 16, 1899; readmitted August 17, 1899; died August 25, 1899.

On admission he complained of having had chills and fever about one week. Head pained him. Bowels were constipated. No vomiting. Some pain was complained of in region of liver and spleen. Heart and lungs appeared to be normal. Urine normal. He was placed on quinine and bowels were moved freely. He improved and on the 16th, in response to a telephone call, he left the hospital against the advice of the surgeon in charge. He made one trip on the boat and returned to hospital next day very much worse. Complained of soreness in bowels, bones, and muscles. Bowels were constipated. He was very weak. He would have his chill about daylight each morning but temperature did not rise very high. Bowels were opened. Quinine and tonics given. Stomach became very irritable. Required morphine hypodermically to allay its irritability. Strength failed rapidly and death occurred at 12.10 p. m. on the 25th instant. His mind was clear to the last. Patient had been working hard for last two months and was worked down.

Necropsy (*two hours and forty-five minutes after death*).—Pupils dilated. No rigor mortis. Tissues slightly jaundiced. Brain not examined; Heart normal; weight, 250 grams. Few calcareous deposits on aorta walls. Left lung normal; 240 grams in weight. Right lung: Weight, 290 grams; a deposit of tuberculous matter about 2 cm. in diameter was found in apex; center was beginning to soften. Liver: Weight, 1,420 grams; much congested; dark in color; surface smooth. Right kidney: Weight, 160 grams; normal; congested. Left kidney: Weight, 185 grams; normal; congested. Spleen: Weight, 185 grams; somewhat enlarged; soft and congested. Other organs and tissues normal.

J. H. O.

MALARIAL HEMATURIA.

J. H.; aged 50; nativity, Massachusetts; admitted November 29, 1899, to United States Marine Hospital, Stapleton, Staten Island, N. Y.; died November 30, 1899.

Brought into hospital in critical condition, with history of having been ill over a week. Sailed on steamer *Niagara* last trip, stopping at Presaro, Mexico. and Habana, Cuba, reaching New York November 21 or 22, 1899. Day he reached New York was taken ill with chill, fever, and sweating. Went to boarding house and doctored himself. Complained of headache, loss of appetite, bilious vomiting; chills, fever, and sweating recurred daily; appetite remained poor; vomiting continued, and he also had hematuria. On admission he was in an extremely weak and stuporous condition, and very little information could be obtained from him.

Physical examination.—Temperature, 40°; pulse, 150; respiration, 46. Inspection: General condition that of profound stupor; pupils contracted; expression dull; respiration rapid and shallow; skin moist. Body well preserved. Palpation: Skin hot and moist; liver and spleen palpable and tender. Percussion: Liver and splenic dullness increased, especially upward. Auscultation: Few moist râles over both apices. Heart rapid and weak.

Treatment.—Given stimulants hypodermically—whisky and strychnine. Also given whisky enema. Hot bottles placed around body. Dark reddish urine to the amount of 300 c. c. was drawn by catheter. No albumen in urine.

November 29, p. m.—Condition gradually getting worse; bowels moved in bed, and he urinated also. Movement of bowels formed and about normal in appearance. Stimulation continued.

November 30.—Condition gradually grew worse, temperature remaining about 40°; pulse continued rapid and grew weaker; respiration continued shallow, and examination of lungs showed considerable pulmonary œdema. He lost consciousness early this morning and died at 8 a. m.

Necropsy (*three hours after death*).—Body that of a male, apparently 45 years old. Well nourished. Pupils uneven and moderately dilated. Conjunctivæ icteroid in tinge. Suggillations well marked and rigor mortis just beginning. Incision made from supraclavicular notch to symphysis pubis showed subcutaneous fat, large in amount, and muscles in normal condition. Calvarium and brain case negative. Membranes congested, as were sinuses. Great deal of fluid around brain. Brain weighed 1,390 grams; markedly congested; conjestion especially marked in veins; consistency soft. Ventricles contained large amount of fluid, and vessels of ventricles were congested. Cerebellum soft, friable, and congested. Pons verolii congested. Medulla congested. Anterior mediastinum contained excess of fat; otherwise normal. Remains of thymus gland normal. Heart was in normal position. Right ventricle was soft and contained large amount of dark fluid blood. Left ventricle was contracted, but contained a small amount of dark fluid blood. Right auricle was engorged with fluid blood. Pulmonary artery contained amount of fluid blood. Heart was covered with considerable amount of fat; weighed 210 grams. Tricuspid orifice admitted three fingers. Tricuspid valves normal. Mitral orifice and valves normal. Aortic valves showed slight fibrous thickening in center of one of segments. Coronary arteries were patent. Pericardium was in normal position; smooth and glistening internally; external appearance showed considerable fat; it contained about 25 c. c. of straw-colored fluid. Left pleura smooth and glistening, except at apex, where it was adherent to lung; otherwise it was normal in appearance. Right pleura smooth and glistening, except at apex, where it also was adherent to lung. Left lung weighed 275 grams; was grayish in external appearance, and upper lobe especially so; lower lobe markedly congested; lung floated and crepitated throughout; at apex, corresponding to adhesions of pleura, was a fibrous thickening. Right lung weighed 340 grams; apex showed fibrous thickenings corresponding to adhesions of pleura; it floated and crepitated throughout; upper lobe grayish-black in appearance; lower lobe was markedly congested and œdematous. Diaphragm extended to fourth rib. Great vessels of thorax apparently normal. Omentum contained excess of fat; otherwise negative. Spleen weighed 460 grams; soft and easily broken under fingers; it bellied the diaphragm up, and was of tarry consistency and dark-reddish appearance. Left kidney was in normal position and covered by large amount of fat; weighed 160 grams; size about normal; capsule nonadherent; consistency about normal; cut section showed a cyst size of hazelnut at upper portion of kidney; markings very indistinct and cortex thin; cortex also showed pale yellowish change. Right kidney weighed 140 grams; capsule nonadherent; markings very indistinct, especially in center; cortex pale and yellow, as in left kidney. Bladder contracted and contained small amount of urine; otherwise negative. Organs of generation negative. Rectum: Great and small intestines negative, except for slight congestion of mucosa. Stomach contained bile-stained material; otherwise negative. Liver weighed 1,680 grams; much congested; soft and friable; dark reddish gray in appearance, and showed fatty change. Gall duct patent. Pancreas weighed 85 grams; normal. Mesentery normal.

C. E. D. L.
G. W. S.

MEASLES—ŒDEMA OF LUNGS.

A. A.; aged 37 years; nativity, Austria; admitted to United States Marine Hospital (Stapleton), port of New York, N. Y., March 16, 1900; died March 20, 1900.

Family history.—Negative.

Previous history.—Had chills and fever fifteen years ago; partially intoxicated on admission.

Present history.—Illness began March 9, 1900, with bronchitis and sore throat; two days after illness began the house where he was stopping took fire; he was removed from the burning building and placed upon the sidewalk and remained there several hours in a drizzling rain. On admission to hospital he could scarcely speak above a whisper; had an irritable cough, with very little expectoration. Face red and swollen, almost closing eyes; conjunctivæ suffused. Has a rash (measles) all over body and extremities; some desquamation over forehead. There were several children sick with measles in the house where he had been stopping. Temperature, 39°; pulse, 108; respiration, 28; mouth dry, sticky, and bad taste; appetite very poor; bowels loose; tongue heavily coated, white, and cracked; lips dry. Patient in a semiconscious condition. Lungs negative. During the time in hospital the temperature ranged from 38° to 40°. The measly eruption disappeared rapidly. The patient never completely rallied from the semiconscious condition. Dyspnœa was quite marked. Patient gradually grew worse, and died at 6.45 p. m. March 20, 1900.

Necropsy (held twenty-one hours after death).—Body that of a male, apparently 37 years old; well nourished, and muscles well developed; rigor mortis well marked; suggillation in dependent portion of body; pupils dilated. An incision was made from the suprasternal notch to symphysis pubis; skin dissected back. Considerable amount of subcutaneous fat. Costal cartilages divided at junction of ribs; adhesions of diaphragm dissected and sternum reverted. Remains of Thymus gland absent. Lungs extend over base of heart. Pericardium smooth and glistening, and contains about 50 c. c. clear-colored fluid (sero-sanguinous). Heart: Weight, 380 grams; contains clots of dark, nonoxygenated blood; valves competent, as shown by the water test. Left lung: Weight, 860 grams; adherent to pleura; œdematous, congested, crepitates, floats, is torn easily; the bronchi contain large quantities of frothy mucus; the dependent portion of lower lobe engorged with dark blood. Right lung: Weight, 990 grams. Condition about the same as the left except that it is more congested and œdematous. Omentum normal. Left kidney: Weight, 175 grams; capsule nonadherent, friable, œdematous. Small quantity purulent fluid and considerable fat in pelvis; marking between cortex and medulla distinct. Right kidney: Weight, 165 grams; same as left. Intestines normal. Appendix normal. Liver: Weight, 2,150 grams; greatly enlarged; capsule nonadherent; extremity friable; adhesions between lobes. Gall bladder normal. Duct patent. Spleen: Weight, 250 grams; enlarged, friable capsule, nonadherent, congested; a cut section tears easily. Stomach normal. Bladder normal. Genital organs normal, except that there is evidence of an annular stricture about 3 inches from the meatus. Rectum normal.

H. E. G.
G. W. S.

YELLOW FEVER.

McG.; died August 4, 1899. Body that of a slightly emaciated male. Pupils dilated. Conjunctivæ yellow. Some small ecchymotic spots about face, neck, and back. Rigor mortis not well marked. Ecchymotic spots about arms and lower extremities, also scrotum. Scar of inguinal hernia operation on right side. Section: Tissues practically bloodless. Peritoneum: Only small portion of intestine is distended, the rest is flat like a ribbon. Cavity: A few mesenteric glands are enlarged. Omentum is dry and sticky. No peritoneal fluid. Liver: Light-brown color, mottled. Ecchymotic spots over surface. Congestion of vasa vasorum in peritoneum. Gall bladder contains fluid bile. Lungs: Right apex is adherent, as is also the left. Pericardium: Injected vasa vasorum of the aorta. Very little fluid in the sac; yellowish tinge. Bladder: Small amount of urine of dark-yellow color. Lungs: Left on section some frothy fluid blood, small amount. Collapse in lower lobe. Right lung apparently normal. Heart: Soft. A number of small scattered ecchymotic spots over the heart. Vasa vasorum of the parietal and visceral layer of pericardium are very prominent. Mitral valves slightly thickened. Heart is dry on section. Calcareous deposits all over the aortic valves. Tricuspid valves normal. Heart muscle is fatty. Liver: On section appears the same as over surface. Apparently dry. Coarse appearance and fatty change. Spleen: Small and mottled. On section is moist. Kidneys: Capillaries injected. Left, on section pale and dry. Right, normal, apparently. Capsule slightly adherent. The same small ecchymotic spots over the external surface. On section shows fatty change, pale in color and dry. Stomach: Small vessels injected, giving an arborescent appearance. Small ecchymotic spots over surface. On section, contents composed of yellowish bile-stained fluid. Ecchymotic spots over whole mucous membrane of cardiac portion. Duodenum congested and ecchymotic spots. Only for about the whole duodedum is there any congestion. Mesentery: In the whole upper part the vessels are congested. Peyers' patches show no congested vessels leading to them.

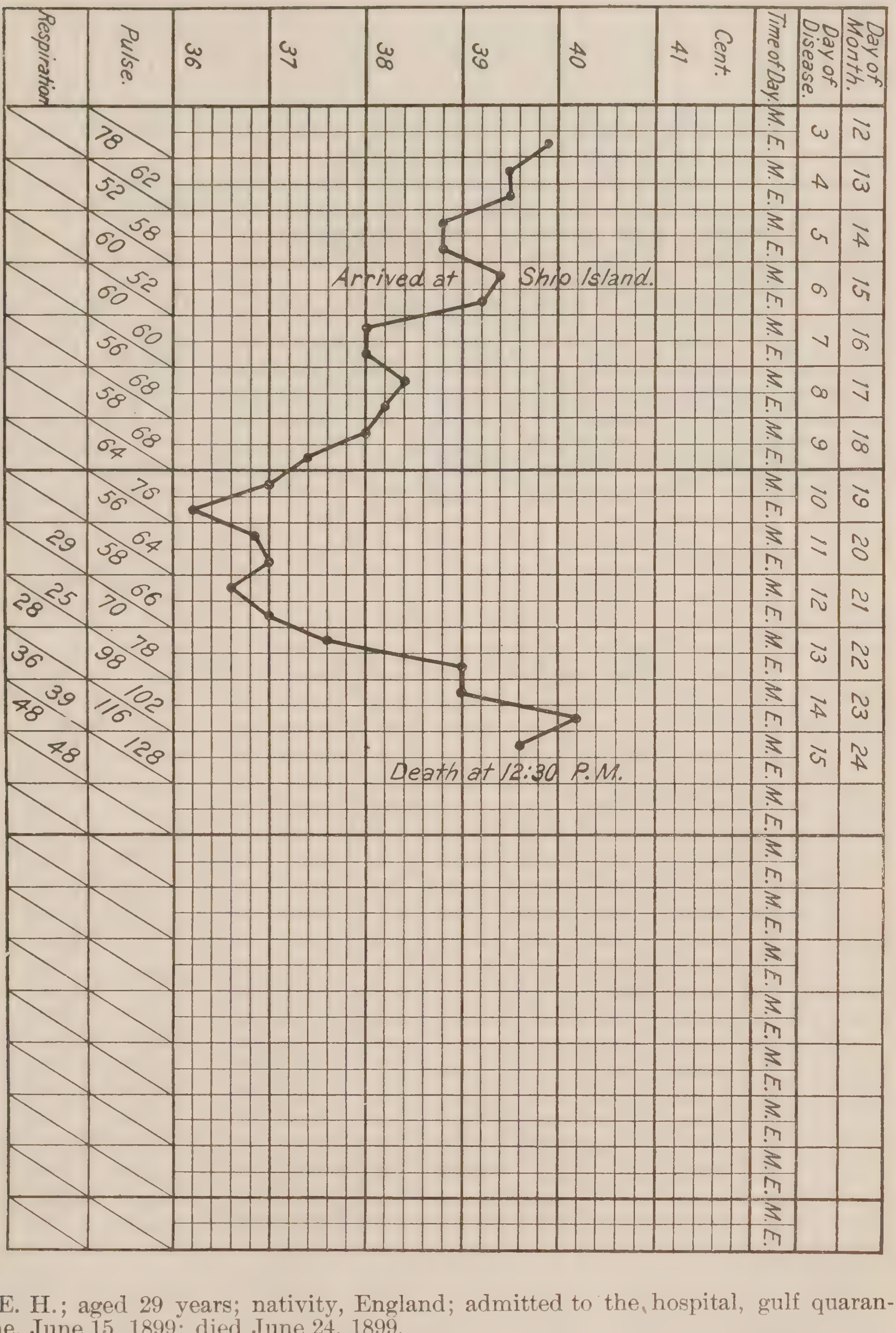
R. H. V.

B. B. S.; died 12 m. August 4, 1899. Autopsy 4 p. m. General appearance: Fairly well nourished male. Slight rigor mortis in lower extremities. Ecchymotic spots over forehead, neck, and chest.

The skin is a lemon-yellow color. Lungs practically normal. Heart small, covered with fat. The vasa vasorum of heart injected, and there are a number of ecchymotic spots over the auricles and the visceral layer of pericardium. Heart muscle on section shows signs of fatty change. The valve leaflets are not thickened. Liver about normal in size. Lemon color with several yellowish patches of a very light yellow Injected capillaries over the surface. On section, dry; the yellowish areas on surface extended into its substance. Spleen normal. Capsule thickened, due to calcareous change. Stomach: The vessels engorged over cardiac portion. On opening it found an extensive congestion of the mucous membrane with several areas of denudation and also a number of ecchymotic spots, large and small, involving the whole cardiac end. The pyloric portion: About one-third of stomach was absolutely clear of any evident change. I remarked at this point that it seemed as if a knife had cut off the inflammation of the stomach at the cardiac portion from the pyloric and then started again at the pylorus and involved the whole duodenum. The contrast of the two portions of stomach was very marked—the one injected, the other clear and translucent with again the duodenum injected. Duodenum: Beginning from the pylorus down, involving the whole duodenum, this congestion appears with few ecchymotic spots. There is also found some pigmentation, evidently not of recent origin. The mesentery and omentum were also engorged. Kidneys seem embedded in an abnormal amount of perirenal fat. They were small and contracted.

Capsule slightly adherent and some small cysts over the surface. On section the cortex was almost destroyed in places. The kidney was pale and showed signs of fatty change. Gall bladder has small amount of fluid bile.

R. H. V.



E. H.; aged 29 years; nativity, England; admitted to the hospital, gulf quarantine, June 15, 1899; died June 24, 1899.

Clinical history.—(As written by Dr. Goldwaite, at Fort Morgan.) On Saturday, June 10, had chill followed by violent headache, high fever, epigastric, and lumbar pains. Arrived at Fort Morgan June 12. 8 p. m., pulse 78; temperature 103.4°; scleræ yellow; conjunctivæ injected; lumbar pains; anorexia; urine scanty and high colored; tongue furred and red pointed.

June 13.—Pulse 62; temperature 102.6°; other symptoms as above. Urine, sp. gr. 1.026, approximately 30 per cent albumen. 2 p. m., pulse 62; temperature 105.2; albumen 20 per cent. 8 p. m., pulse 52; temperature 102.8; albumen 10 per cent.

June 14.—Pulse 58; temperature 102°. Noon, pulse 60; temperature 102°; albumen 40 per cent.

History.—(Obtained by Dr. Moncure on arrival at Ship Island.) Taken sick Friday, June 9, at 6 p. m. at sea—violent pain in the back and severe frontal headache. The latter lasted until the 13th. He was delirious during the first night. He felt nauseated from time to time and vomited once or twice after taking castor oil. Has taken no food except a little toast and tea. Had many actions from the castor oil.

June 15.—The scleræ are yellow; likewise the skin, especially of face, chest, and arms. Urine, sp. gr., 1.020, and contains albumen.

June 16.—Urine albuminous, increasing toward night about one-third. Has been drowsy all day, but wakes when spoken to. Bowels moved after an enema.

June 17.—Same conditions, with increased drowsiness.

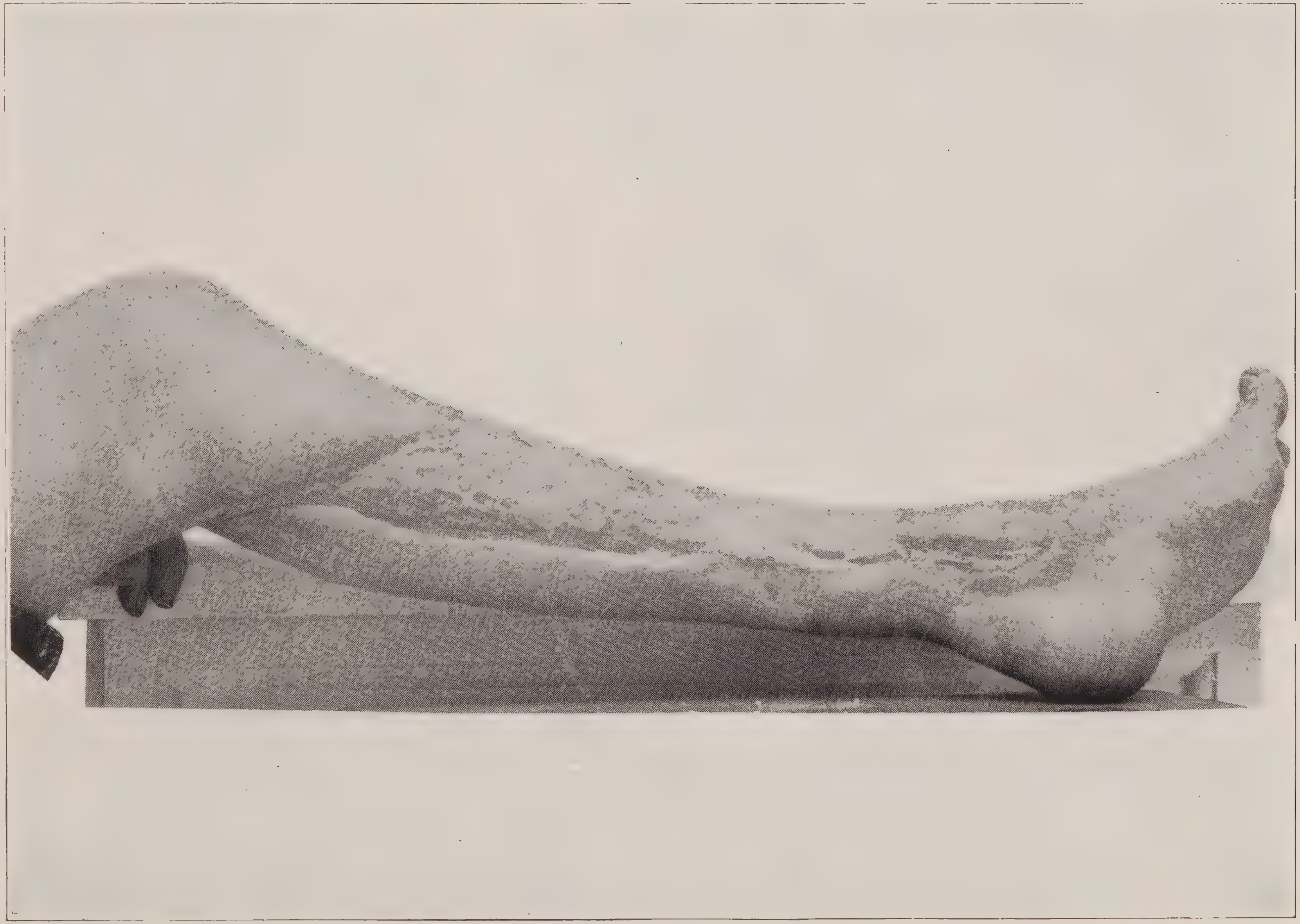
Sunday, June 18.—Urine contains blood and albumen. He is ofter in a stupor; is restless and talks to himself.

June 19.—Urine and feces passed together in commode. This is the only time urine has been passed in the last twenty-four hours. He is more conscious than yesterday, but still is very drowsy. Had uræmic convulsions in the evening. From this time until his death—12.30, June 24—the patient was in a continuous stupor, the bowels and bladder acting occasionally involuntarily, the urine always bloody, so as to stain the sheets and sometimes appearing to be almost pure blood. The skin and eyes continued yellow, somewhat increasing in shade, especially after death, when the face and neck were mottled with deep yellow and congested patches.

No necropsy.

P. C. K.

CONTRIBUTED ARTICLES.



CELLULITIS SUCCEEDING CONTUSION OF LEG—EXTENSIVE SLOUGHING—SKIN GRAFTING—RECOVERY.

By Surg. HENRY W. SAWTELLE.

G. H.; aged 24 years; nativity, Denmark; was admitted to the United States Marine Hospital, Chicago, Ill., August 22, 1899; discharged May 30, 1900.

The patient gave a history of having had chills and fever while serving in the Spanish-American war and presented a malarial cachexia. The day before admission he was struck on the inner side of the left leg by a piece of lumber, producing a slight abrasion of the skin. The following night and again the next day he had a severe chill, followed by fever (39° C.) and intense headache. On examination no bad effects were apparent excepting a slight contusion at the point of injury; a continuous high temperature and accelerated pulse led to the suspicion of pus infection, which subsequently proved to be the case. The patient soon complained of pain, and the examination showed indications of the infective process. A free incision was made in the middle of the leg, evacuating a large amount of pus, but unfortunately no examination was made with a view to determining the character of the pus germ, though from the previous history of the patient the plasmodium malarie undoubtedly was an important etiological factor in the case. Two days later another incision was made near the tendo Achilles, and a drainage tube carried through to the first incision, establishing free drainage, and the limb was then immersed in a 1–2,000 bichloride solution. Despite careful antiseptic treatment, the wound during the following eight days underwent extensive sloughing, which required the removal of a large area of skin and subcutaneous tissue. Several sinuses in the popliteal space and lower portion of the leg were laid open, and as soon as the wound appeared to be in the proper condition, skin grafting was commenced by Theirsh's method, and after several attempts they finally became firmly embedded, and a month later almost the entire granulating area was covered, with the exception of a small spot on the lower portion and another in the popliteal space, which remained unhealed. These continued to improve gradually, however, and on May 30, 1900, the process of repair being complete, the patient was discharged.

The accompanying photograph shows the extent of surface grafted.

A NOTE ON THE INTERVAL BETWEEN INFECTING AND SECONDARY CASES OF YELLOW FEVER FROM THE RECORDS OF THE YELLOW FEVER AT ORWOOD AND TAYLOR, MISS., IN 1898.

By Surgeon H. R. Carter.

When a man develops yellow fever in an uninfected place, if the conditions of his environment and of the people therein are favorable, some of the people will develop the disease (see footnote No. 1).

A proper inquiry is of the space of time which intervenes between the development of the first case which infected the environment and the development of the cases contracted from this environment; and it is to give some data on this subject, observed at Orwood and Taylor, Miss., 1898, that this note is presented.

The question set by the writer is, How long in time in every particular instance determinable at Orwood was it between the development of a case of yellow fever in an uninfected place and the development of the next case (and other cases) contracted (indirectly) from the infection from the first case?

There are quite a number of observations in various reports and histories of epidemics of isolated instances bearing on this subject, but no great number are so observed and so recorded as to be beyond question reliable. Indeed, it is obvious that the conditions for reliable observation on this matter are not common. It is necessary:

(1) That the date be known of the development of the case of yellow fever which caused the infection of the environment, i. e., of the "infecting case."

(2) That it be known that the cases accounted as contracted from the environment in question were so contracted in fact, i. e., were not contracted from other sources, including fomites brought by the first sick man.

(3) That the exposure of these secondary cases be known to be practically continuous from the development of the first case.

Now, yellow fever is essentially a disease of towns, and it is easy to see how rarely are we able to fulfill the first two conditions in a town of any size. If we are able to determine the first case near enough to its development to watch for the secondary cases (which does not always occur), we do not usually get more than one observation, i. e., of the people contracting the fever in the house with the patient, the intercommunication of people in a town being such that after this it is difficult to certainly trace the source of infection of persons developing the fever.

Another difficulty is that observations are not usually made or records kept of a kind to determine the problem we are investigating, so that if the conditions are favorable for observation, the records do not properly preserve them.

The epidemic of yellow fever at Orwood, Miss., in 1898, was peculiarly well suited for observing this element in the propagation of yellow fever, and the record of it, which, by the courtesy of Drs. Gant and Mathews, of the Mississippi State board of health, I am permitted to use, was kept with particular reference to throwing light on this subject, as well as some others involved in it.

Orwood is not a town, or even a hamlet—it is a "neighborhood"—an agricultural community about 12 miles from the railroad at Taylor, consisting almost exclusively of white people, living on their farms, seldom closer than a mile apart, working their own lands with little hiring, having little intercourse with the outside world, practically all nonimmune to yellow fever; intelligent, law abiding, and well disposed; people who were at once intelligent enough to know, and honest enough to tell, the truth, and to cooperate in good faith with the efforts made to trace the infection of each case, and by stopping visiting, etc., to limit the spread of infection already introduced. This was rendered the easier because Dr. Gant, who made the diagnosis of yellow fever, and under whom (directly or indirectly) all sanitary measures were conducted, was much beloved in the community, and had their entire confidence. The diagnosis of yellow fever was not disputed, although there were no deaths in Orwood until several weeks afterwards, and very few in all. A greater tribute to the good faith of the community, or to its confidence in Dr. Gant, can scarcely be given.

Yellow fever was introduced as follows:

(1) On August 6 by Miss Gray, four days from her uncle's house at Taylor, then infected, to Gray Mansion. Miss Gray had been at Taylor four days, and states that she brought no clothing with her save what she was wearing and one night wrapper.

(2) Ed. Gray, uncle to above, brought to the same house on August 25 from the same house at Taylor, where he had developed yellow fever four days before. Brought clothing in trunk, not open or unpacked up to September 3 (date of my first visit).

(3) Mrs. Gray, grandmother of Miss Gray, sickened en route from same house at Taylor to same house in Orwood, Gray Mansion. Also, on August 25, brought clothing with her, opened trunk day after arrival. All of these were sick in the Gray Mansion.

(4) Mrs. Gray, daughter-in-law of Mrs. Gray, developed yellow fever en route from same house at Taylor to her house in Orwood neighborhood, on August 25, also. Her house was not the Gray Mansion, but some miles from it. Brought furniture, bedding, etc., with her. Taylor is about 12 miles from Orwood, over a bad road, and normally there is not much communication between the places, mainly among the Grays.

We thus have yellow fever introduced from the outside into two houses in Orwood on August 6 and August 25. Almost certainly fomites were introduced (at both houses) on the 25th and possibly on the 6th, although the history, especially the subsequent history, seems to negative this.

The "Gray mansion" was the point of spread. This house was infected prior to the arrival of Ed. Gray and Mrs. Gray in it, as is shown by the occurrence of four or five other cases there before their arrival. Prior to their arrival people had been visiting at the Gray mansion. They (the Grays) were prominent people and popular in the community. After the 25th a much larger number of people came to nurse and sit up with old Mrs. Gray and Ed. Gray and the other sick. This house was virulently infected with yellow fever of mild grade. Of 46 people nonimmune to yellow fever who were in this house on or after the 21st of August, 45 developed yellow fever, very few having any other exposure (see footnote No. 2).

The latter part of August, the 30th, I think, the diagnosis of yellow fever was made by Dr. Gant at the Gray house and elsewhere in the community, and at Taylor as well, and visiting, save such as was necessary to care for the sick (the physicians directing this), was ordered stopped, and was stopped.

We thus had at Orwood:

(1) An intelligent, well-disposed community.

(2) Living almost entirely to itself in isolated farmhouses, separated far beyond the aerial conveyance of yellow fever, and with very few negro houses or other living houses on the same farm.

(3) A definite introduction of the disease.

(4) An early diagnosis, there being then but one focus active in spreading fever, from which many people had contracted it to develop it later.

(5) The cessation of visiting after the announcement of the fever, except such visiting as was known to the reporter.

(6) The almost entire absence of negroes in the community, and that none of them had so far developed the disease. Infection among negroes is confessedly difficult to trace.

Obviously it presented an ideal field for the study of "house infection," and, properly studied, should throw light on several problems connected with this disease, among them the subject we have mentioned.

To avail ourselves of the best advantage of the situation for this purpose, it was agreed, at the instance of the writer, to keep the records by "houses" and to scrutinize carefully the probable and possible exposures to infection of those developing yellow fever even after this knowledge ceased to be of any importance from a sanitary (preventive) standpoint.

With this preliminary, let us examine the "house record" of Orwood. This was kept by Dr. Mathews under the auspices of Dr. Gant, much of the data being furnished by Dr. Gant. It has been compared with some notes (of the earlier cases) of my own and some of later cases, by Dr. von Ezdorf (United States Marine-Hospital Service), with which in this matter it agrees. Much pains have been taken to exclude doubtful statements or to indicate that they are doubtful. I can not give the full weight to records of houses in which the cases appear late in the epidemic, as the source of infection is less certainly traced after many foci of infection are developed and the isolation has continued until it is irksome. Only those in the early part of the epidemic then will be relied on.

For the purpose of this paper the records used as reliable are believed to be so (see footnote No. 3).

House No. 1. Gray house, Orwood.—Sallie Wilson Gray, at Dr. Gray's, in Taylor, July 29 to August 2, at 6 p. m., developed fever August 6, 11 p. m.; Lucille Gray, roommate of above, August 23, 11 a. m.; Annie Gray, August 24, 11 a. m.; Sam Gray, August 24, 7 p. m.; Pate Gray, August 25, 2 a. m.; Cecil Gray, August 25, 12 midnight; Christobel Gray, August 25, 7 p. m.; Ed. Gray, brought home from

Taylor (sick August 21) on August 25; Mrs. Charles Gray, brought home from Taylor, sickened en route, August 25; Mrs. Knox, nurse, arrived August 23, 1 a. m., sickened August 31, 2 a. m.; Mrs. McCarter, nurse, arrived August 27, 2 p. m., sickened September 1, 9 a. m. Dr. Mathews also developed fever here five days from first exposure (four days' continuous exposure), but was not treated here.

Several others, nurses and helpers, also developed fever in this house, some being treated here and some taken elsewhere. All who lived in the house developed fever there and all save one who entered it after August 21.

Here there were sixteen and one-half days between the first case and the second and five others within the next two and one-half days (see footnote No. 4).

All of the above to Edward Gray were continuous residents of this house from and before August 6.

Miss Gray denied that she brought any clothing or fabrics or anything whatever from Taylor save the clothing she was then wearing on her person. Even had she done so, we would scarcely accuse any such apparel, brought already infected from Taylor, as the probable cause of this outbreak. We would have expected her sister (and roommate) to have developed fever long before the boys, and certainly prior to the twenty-first day of the introduction of the already infected fomites. I think, then, there is little reason to ascribe the infection of these people to fomites brought infected from Taylor. Still, although improbable, this is possible, and if anyone wishes on this account to exclude this case from the "infection of environment by the patient" he can do so. The fact remains that it was sixteen and one-half days between the development of the first and second cases (see footnote No. 5).

House No. 2. McMillan's.—G. W. McMillan, August 29, 12 noon, exposed at Gray's; Mrs. McMillan, September 13; two sons of above, September 13.

McMillan claimed to have had only one exposure of some four and one-half hours at the Gray house (notes of writer) on Thursday, August 25, and brought nothing therefrom save the clothes he was wearing. He did not remove his coat at Gray's, and wore it back to his own house. With this history, and as no one save himself sickened until the 13th of September (he sickened August 29), it is fair to consider him as the "infecting case" of the house.

The time interval is fifteen days (plus or minus a fraction of a day), and three people, all in the house, sickened within twenty-four hours.

House No. 3. Phipps Spears.—Phipps Spears sickened August 29, 1 p. m.; source of infection, Gray's; Mrs. Spears, September 18; Miss Katy Spears, September 18; Miss Bertha Spears, September 19; Laura Spears, September 22.

This gives twenty days between the first and second cases, four of which developed within five days.

House No. 4. Crowell's.—I. G. Crowell sickened September 2; exposed at Gray's.

No other cases in this house, although there were several other people living there—nonimmunes. Gives no data on this subject.

House No. 5. Treloar's.—J. C. Treloar, August 31, 10 a. m.; exposed at Gray's; Mrs. Treloar, September 1, 4 p. m., exposed at Gray's; Dorothy Treloar, September 29.

After the house was disinfected, September 26 and 28, Ruth Treloar, October 2; Jack Treloar, October 11.

Here, although there were two persons sick of yellow fever in the house, both contracting it at Gray's, yet no other cases developed for twenty-nine days after the occurrence of the first and twenty-eight days after the second case, and five out of eight nonimmune children resident in the house escaped fever. What influence the disinfection had on the development of the fever I do not know—may have been simply a concomitant, or the stirring up of things, etc., in that process may have brought some fomites into activity. The late occurrence of the last case, October 11 (in a good-sized boy), for reasons before mentioned, rendered it difficult to exclude infection in this case from other sources than this house. Unrestricted visiting between houses where sickness existed was resumed in the early part of October.

Taken altogether, the data record of this house is not altogether satisfactory. If considered, its interval is twenty-nine days.

House No. 6. Sims's.—W. E. Sims, August 31, night, contracted at Gray's; H. E. Sims, September 1, 2 a. m., contracted at Gray's; Mrs. Sims, September 20; Reginald Sims, September 20; James Sims, September 20; Joe Sims, September 22; Minnie Sims, September 27.

The first two cases were contracted at Gray's, and the interval to the secondary cases is twenty or nineteen days, according as which is taken as the "infecting case." Three of the secondary cases occurred in one day, and all in the house (seven) had the fever.

House No. 7. Fisher's.—Rufus Fisher, exposed at Taylor's, September 3; Miss Gertie Fisher, September 26; Miss Sally Jones, September 30; Miss Mollie Fisher, September 30; Mrs. Fisher, October 2; Ruth Fisher, October 4; Dosia Fisher, October 6.

Twenty-three days here between the first and secondary cases, of which there were six, somewhat more scattering than is usual, but all within ten days.

House No. 8. Rufus Spears.—Walter Johns, September 17, exposed at Ed. Spears's; Rufus Spears, October 8; Mrs. Spears, October 8.

Twenty-one days is the interval here. This house is probably later than should be taken, but is given by Dr. Mathews as I have recorded it.

House No. 9. Ab. Jones.—Ab. Jones, August 31, 3.30 p. m., contracted at Gray's; Mrs. Jones, September 22, 3 a. m.; Miss Edna Jones, September 22, 4 p. m.; Earl Jones, September 22, 5 p. m.; Herbert Jones, October 5, 1 p. m.; Leslie Jones, October 20, 3 p. m.

Twenty-one and one-half days between the first and next cases, three of which occurred the same day. For reasons given before, the origin of infection in the case of Leslie Jones doubtful.

House No. 10. Mrs. Rogers.—Mrs. Rogers, September 4, 10 a. m., probably contracted from Taylor; Miss Eva Rogers, September 20; Miss Della Rogers, September 22.

Sixteen days between first and second case.

House No. 11. Berry Harrison's.—Berry Harrison, September 25, probably fomites from Gray house; Mrs. Harrison, October 8.

Interval is thirteen days, but there is a chance of exposure of Mrs. Harrison to fomites after September 25. Unreliable.

House No. 12. Dr. Locke.—Dr. Locke sickened October 1; no other cases in house.

Introduction by fomites from Taylor; second case exposed to same fomites continuously to development of fever.

House No. 13.—Only one case in house.

House No. 14.—Origin ascribed to fomites, exposure being more or less continuous thereto.

These three houses give no data bearing on the question we have set ourselves, nor indeed does house 11 give such that one can rely on.

House No. 15. White.—W. N. White, September 2, 1.15 a. m., contracted Gray's; D. A. White, September 22, 2 p. m.

Twenty and one-half days interval; no record of number of people in house.

House 16. Ragland.—Miss Pearl Ragland, August 29, 9 a. m., contracted at Gray's; J. Ragland, August 30, 12 midnight, exposed at Gray's; Miss Jane Phillips, September 9, 12 midnight.

The interval here is eleven and one-half days as the time between the development of the first and secondary cases. There were two people sick of yellow fever in this house (a small, close one, of one story, and, as I remember, only two rooms), and there were but these three in the house when I visited. Miss Phillips, who nursed and cared for both at that time (September 4), was "anxious and overworked." (See footnote No. 6.)

House 17.—Only one case reported in the house; gives no data on this subject.

House 18. I. B. Orr.—Langdon Orr, young man, sick August 22, 3 p. m., at Gray house on evening of August 18; Miss Maggie Orr, at Gray house, August 24 and 27, sickened August 30, 1 a. m.; Dr. Mathews brought in sick from Gray house September 3, in afternoon; I. B. Orr continuously exposed at Dr. Gray's house from August 25, sickened September 6; Miss Carrie Orr, at Gray's August 25 and all night of 27, sickened September 7; James Orr, September 20; Harry Orr, September 24; Miss Bell Orr, September 27; Mrs. I. B. Orr, October 7; Lessie Orr, October 7; Miss Mary Ann Orr, October 7.

Miss Mary Orr was at the Gray house in August and once in early September, and is the only person who visited that place after August 20 who did not develop yellow fever under such conditions that it must (most probably) be ascribed to the infection of that house. This is an extremely interesting house, and my own notes on it up to and including September 4 are full. The house was a large, airy one. The family consisted of ten. They were close friends and relatives to the Grays at Orwood and visited there, although it was some miles distant. Mr. Orr and some one of the elder daughters (Maggie, Carrie, and Mary) were then almost every day, from the 25th on, nursing the sick, etc., Mrs. Orr having many household cares, and the younger children did not go. The whole family had fever. Visiting stopped when Mr. I. B. sickened, there being then four sick with fever in the house, and all who could help were needed at home. Whether Maggie Orr, Mr. Orr, and Carrie Orr contracted fever from Gray's or from their own environment, infected by Langdon Orr, may be a question. The writer believes that enough is known to decide in the case of the first, but it is not the purpose of this paper to use cases as secondary which may have contracted the disease elsewhere, or vice versa. It will be discussed later on.

An interval between the infecting case and the first case contracted from the infected environment can not be determined for this house.

House No. 19. J. W. Gray.—Gives no data determinative for this subject.

House 20. Dr. Gray.—Gives no data useful for this subject.

Taylor, Miss.—Records of the same kind, by houses, were made of the cases at Taylor, but the conditions were far less favorable.

(1) The place was almost a hamlet, some of the houses being close enough for aerial transmission of infection between them, with a common loafing place in the railroad depot and the store. The depot was infected early; whether the store was we did not determine.

(2) The fever existed quite a while, six weeks at least, before it was diagnosed, and several (four or five) foci of infection had been formed, and nearly or quite a dozen cases had occurred.

(3) There was a considerable negro population, thickly settled and mixed with the whites, of whose visiting and conveyance of fomites no one can predicate. The presence of this race introduces an element of uncertainty in tracing the propagation of yellow fever that it is difficult to estimate.

(4) Some of the notes taken at Taylor were necessarily taken some time after the occurences to which they refer, and thus there is question about dates, and, I think, sometimes, of diagnosis. There are a few houses at Taylor of which the records are definite and correct, the date being either the date of record (by Dr. Haralson or myself) or so fixed by record of deaths, etc., that they can be relied on. I give them.

I. *House of Rev. Mr. Williams.*—Twelve in family. House very clean and well kept. Isolated from others. Two colored servants.

Hampton, August 7, at night, eldest son; believed to have been exposed at Dr. Gray's. Died with suppression and black vomit, turning very yellow August 10. Both this death and Dr. Gray's were ascribed to "congestion;" Grover (age 12), August 27, at night; Mrs. Williams, September 3, 8 a. m.; Ora (24), September 4, 12 night; Lee (22), September 6, 9 a. m.; Mark (9), September 8, at night; Sidney (17), September 9, 9 a. m.; Viva (3½), September 9, 10 a. m.; Susan Thomas (colored), September 9, during the night; Cleveland (6), September 10, at night; Nettie (26), September 15, 4 p. m.; Charles (15), September 19, 11 a. m.; Mr. Williams, September 23, 4 to 5 a. m.; Laura Spicer (colored), September 23.

Twenty days is the interval here between the first (infecting) and secondary cases. The secondary cases, thirteen in all, followed in fairly rapid succession after they began. The children were kept out of the house as much as possible, and slept upstairs as far as possible from the sick rooms (until the latter became too numerous to be avoided) for the purpose (and we believed with the result) of delaying some of the attacks, so that all might not get sick at once. An explosion—several cases in one day—is not an uncommon occurrence in large households.

II. *The Sisk houses (11 inmates).*—Two houses, 30 to 40 feet apart, practically one so far as communication is concerned until the development of fever in Mr. Jesse Sisk; communication of adults continued free after that date, Lewis Sisk and wife nursing the people in the other house. That of the children was attempted to be prevented, but they go to their grandparents constantly, especially after the development of their mother's case.

Jesse Sisk's (4 in family).—Walter Morrison, August 17, probably from Dr. Gray's; Will Sisk, September 2, night; Jesse Sisk, September 5, night; Mrs. Sisk, September 6, night.

Lewis Sisk's (6 in family and 1 colored).—Mrs. Sisk, September 7, 4 p. m.; Lewis Sisk, September 8, 10 a. m. (may have contracted this disease elsewhere); Henry Sisk (baby), September 8, 12 midnight; Sue Joiner (colored), September 12; Rodney, September 13, 10 a. m.; Charles, September 17, 1 p. m.; Paul (10), September 23, 5 p. m. (see footnote No. 7).

Sixteen days is the interval given here. The secondary cases, 9 in fifteen days or 10 in twenty-one days, follow somewhat more slowly than we have seen. The children were not continuously exposed to their grandparents' house. Will Sisk was an invalid, with surgical kidney.

HOUSE III.—*Taylor Hotel (5 in family).*—Captain Taylor, August 10, 4 p. m., at Dr. Gray's; Mrs. Taylor, August 11, 11 a. m., at Dr. Gray's; Clarence (colored), August 25; Guy Taylor, August 28; Mrs. Guy Taylor, September 5.

Clarence went almost everywhere and may have contracted his disease elsewhere. Fifteen days is the interval to Clarence (eighteen if he be held doubtful).

There are other houses recorded in the Taylor "house record" which could be taken as probably satisfactory, but they are not certainly so. The three we have given we believe do fulfill the conditions laid down.

Grouping the results obtained, we have the following summary:

Summary for Orwood and Taylor.

House.	Infecting case.	First secondary case.	Interval in days.	Secondary cases.		People in house.	Remarks.
				Number.	Days.		
Orwood 1	Aug. 6	Aug. 23	16½	6	2½	[a] 7	Of 46 persons exposed, 45 probably contracted fever here.
2	Aug. 29	Sept. 13	15	3	1	[a] 4	
3	....do ...	....do ...	20	4	5	[a] 5	
6	Aug. 31 or Sept. 1	Sept. 20	19½	5	7	7	3 secondary cases occurred in 1 (the first) day.
7	Sept. 3	Sept. 26	23	6	10	(?)	Source of infection in last case doubtful.
9	Aug. 31	Sept. 22	21½	4 or 5	13 or 28	6	
10	Sept. 4	Sept. 20	16	2	2	(?)	
15	Sept. 2	Sept. 22	20½	1	....	(?)	
16	Aug. 29 Aug. 30	Sept. 9	11½	1	....	3	Shortest interval of the list.
Taylor 1	Aug. 7	Aug. 27	20	13	27	14	Secondary case developed in 14 days.
2	Aug. 17	Sept. 2	16	8 or 9	15	10	Paul Sisk is not rated as contracting fever at Jesse Sisk's.
3	Aug. 10 Aug. 11	Aug. 25 Aug. 28	15or18	3 or 2	11 or 8	5	

[a] All continuously resident.

The "intervals" for the twelve houses run fairly uniformly, mainly from two to three weeks, one house giving less than two weeks (eleven and one-half days) and two houses more than three—twenty-one and one-half and twenty-three days, respectively.

The temptation to quote instances observed elsewhere, to collate them with the result given above, and to attempt to formulate the usual inferior limit (see footnote No. 8) for the time between the infecting and secondary cases is considerable, but this note was intended to give the interval of time which did elapse in all the houses at Orwood and Taylor between the first case of yellow fever and those believed with reasonable certainty to have developed yellow fever from infection brought to the house by the first case.

This ends our note, but it is judged best to give an appendix of the records of all the houses in Orwood (although some give no determinative information on this subject). The reader can judge for himself whether there was any improper selection of houses; if any were omitted which should have been taken in the foregoing table, or taken which should have been omitted. For Taylor this is not possible, some of the data being not only indeterminate but unreliable. Those given for Taylor are all of which the writer has satisfactory record and which he believes to fulfill the required conditions.

FOOTNOTES.—No. 1. It is assumed that the infection of yellow fever may be conveyed directly from one sick of that disease to his environment, it being so generally admitted that it seems a waste of time to argue it; but the data recorded in this paper do not depend on or involve this theory or indeed any theory. They are simply facts that were observed.

No. 2. This house was a frame house, old, but sound and well preserved, on the top of a considerable hill, well exposed to sun and wind, and, as far as I could judge, as clean and the premises as well kept as country houses of the better class usually are; although at the time I saw it, there being then seven cases of yellow fever in it, and one very ill, it was probably less well cared for than usual. The privy was distant from the house, and clean. I did not, however, give the place a close sanitary examination.

No. 3. Far more important than to determine the time between infecting case and secondary cases (or the inferior limit of this time) is to determine the limits of the period of incubation of yellow fever in one contracting it and the period of "house infection" or so-called extrinsic incubation (which, of course, are involved in the problem set ourselves). It will be recognized that the conditions at Orwood, and to a less degree at Taylor, were extremely well suited for the study of the former problems and, indeed, the observations there are for this purpose extremely valuable; but, as the writer has been collecting data on this subject since 1887, it seems better to collate these (Orwood and Taylor) observations with the others when time and convenience permit the work receiving the care it deserves.

No. 4. Langdon Orr, who very probably (almost certainly) contracted his sickness from this house, was also sick at this time. (See House No. 18.) He sickened August 22. To him the "interval" would be sixteen days. Note that he developed the fever before Miss Lucille.

No. 5. When the source of infection of a household is fomites, we generally observe several cases developing about the same time, without the long interval between the first and other cases. Of course the times of exposure to the fomites of different members of the household and individual susceptibility may be such as to make any variation in the dates of development. The statement, however, is generally true.

No. 6. Compare with a case at Jackson, Miss., 1899: "Mr. H. developed yellow fever October 20, in early morning; Mrs. H. developed yellow fever October 30, at night. Interval, ten and one-half days."

No other nonimmunes in the house, children having been sent away. Mrs. H. did not leave the premises, scarcely the sick room and the one adjacent, from the date Mr. H. became sick. Mr. H. was exceedingly ill and Mrs. H. was under severe strain, moral and physical. He was treated on the ground floor and the room was kept dark, the weather being intensely hot. Mrs. H. slept (when she slept) in adjoining and communicating room. No attempt at sanitary precautions in the house. Mrs. H. was from mountainous district in Virginia.

We might (from analogy) consider that the conditions here and at Ragland were favorable for an early infection of the premises and for lowered resistance of the one exposed, and thus (with the intimate exposure) favor an early development of the secondary case, and thus explain the fact that these two "intervals" are shorter than usually observed. The writer is not inclined, however, to offer any explanation; the conditions which affect house infection and individual susceptibility are not sufficiently known to theorize on them.

No. 7. Up to September 10, and doubtless afterwards, this boy (aged 10) was being kept away from his grandparents' premises, where all were very ill (two of them dying), to keep from disturbing them. He most probably contracted his fever at home, from Lewis Sisk's premises.

No. 8. Obviously only the inferior limit is in question. A place may be infected and a person live in it an indefinite time without contracting yellow fever, the time depending on individual susceptibility (temporary or permanent) and other causes. Individual susceptibility is a factor as well in determining the time of development of the first secondary case, and thus in determining our "interval." But where there are many who develop yellow fever in a house (as at Gray's and Williams's) its influence is lessened. It is not reasonable to suppose the individual susceptibility of every one of a considerable number of people developing yellow fever to be less (or much less) than the normal.

APPENDIX I.

Houses in Orwood not considered as giving data suitable for subject of this note:

House 4.—Crowell's, in which no cases developed following the first case, September 2, although there were several (certainly 3) nonimmunes resident there. Has been mentioned.

House 5.—Treloar's, 10 in family, has also been discussed at length. It would probably be honest to count this house as giving an "interval" of twenty-nine days.

House 11.—Berry Harrison's; number in family unknown. Berry Harrison sickened September 25. Father spent evening at Gray place August 27 and hung the clothes he wore in a closet with some feather beds. Closet was not opened until a few days before Berry was taken sick. On September 14 Berry bought sugar and pair of shoes at Tatum's store, then supposed to be infected.

Mrs. Harrison sickened October 3. If the first case contracted the disease in the manner implied by the reporter (one does not know enough of the circumstances to form any conclusions), the second case may well have been exposed to the same source of infection at any time from opening of the closet to date of her sickness.

The record of this house then gives nothing determinative for our subject.

House No. 12.—Tatum's store: Mr. Tatum bought goods from Taylor's depot August 24 and August 29; Mrs. Tatum sick September 29; Mr. Tatum sick October 4; Eva Tatum sick October 13.

Whether the infection was introduced in the way stated may be a question; it is possible. If so, who can say if the other cases were from exposure to the Taylor fomites (or other fomites) or to infection of the house of the first case?

House No. 13.—J. S. Locke: Dr. Locke, October 1, exposed at Fisher's. No other cases.

House No. 14.—J. T. Reeves: J. T. Reeves sick October 5 without other known exposure than possibly the following: A shaggy house dog went back and forth from Phipps Spears's house (House No. 3) to Reeves's house, and slept on chairs, beds, etc., at both places. Phipps Spears went to Reeves's house September 14 and talked with him, but did not go in. J. T. Reeves, October 5; Mrs. Reeves, October 5; Clarence Reeves, October 8; Alice Reeves, October 15; Ernest Reeves, October 16.

Without discussing the etiology, which, if somewhat startling, is probable enough, there being no evidence to show that the first cases contracted the disease elsewhere save from fomites in their own house, it would be impossible to determine if the others were in a true sense secondary cases to the first.

The picture of the infection is certainly that of infection by fomites, or at least common infection for all. Notice the lack of considerable interval. Independent of history, it is too late in season to be used.

House No. 17.—Dennis Caruthers, exposed in Gray house, sickened September 10, 2 a. m. No record of any other cases in his house, but no statement that there was none other.

House 19.—J. W. Gray's: Miss Blanche Gray, August 27. Contracted at Dr. Gray's. House disinfected September 18. Subsequently no one was permitted to go in or out except the fumigators, who boarded there and went back and forth from Dr. Von Ezdorf's tent, 40 yards distant, who sickened (with yellow fever) September 27, and was there treated.

J. W. Gray, October 8, 1 p. m.; N. D. Gray, October 9, 10 a. m.; Pat Gray, October 10, 8 a. m.; Mrs. J. W. Gray, October 14, 2 a. m.; Robert Gray, October 18, 11 a. m. (Mathews's notes.)

Without discussing the probable source of infection of the last five persons, it is obvious that considering the lateness of the season, and consequent general diffusion of the disease in the neighborhood, the presence of the "fumigators," the existence of a case of yellow fever within 40 yards, together with the impossibility of preventing 5 people, 4 of them men and boys, from going out for three weeks, we can not be satisfied that they were infected from the environment infected by Miss Blanche Gray. If the disinfection was efficient, it certainly was not.

This house, then, gives us no data which we can use for the subject in hand. The probability is that this house escaped infection from the first case, and that either fomites were introduced prior to October 8 or that the last 5 cases were exposed to a common extraneous source of infection. The picture would be the same in each case and would correspond with what we have.

House No. 20.—Mrs. Dr. Gray's: Mrs. Dr. Gray sickened on the road from Taylor, 10 a. m., August 25. All her children, three in number, had been sick at Taylor. There were naturally no cases at this house. The moving was general, her bedding, furniture, etc., coming also. No infection in Orwood is ascribed to this house.[a]

Appendix II.

House No. 18.—Orwood. We propose to further discuss the propagation of yellow fever at house No. 18, Mrs. Orr's:

Note that all those who sickened before September 20 had been exposed at the Gray house, a badly infected place; that none of those who had not been there exposed (at the Gray house), sickened prior to Sepember 20.

Note also the considerable interval, thirteen days, between the development of the last case exposed at the Gray house and the first case not so exposed, and that the intervals between the cases known to be contracted from infection at Orr's house are much less.

From this alone I think we would be justified in saying that it is most probable that the cases arising prior to the 20th were contracted at the Gray house and those from that date at Orr's, Orr's house being infected by some of the preceding cases.

If, in addition to this, we compare this house with all the others we have recorded, we find that none of them show so short a time as seven and a half days between the infecting and secondary cases, and unless Maggie Orr's case was to that extent exceptional, it was not a secondary case, and therefore not contracted from infection of this residence by Langdon Orr.

The same can not be said of the next two cases, 15 and 16 days, respectively, from the first. There are intervals which we have observed. The intervals of development, September 6, 7, 20, 24, and 27, of the whole group do not correspond with what we have seen of secondary cases in other Orwood houses, while the group from the 20th on does so correspond.

The conclusion the writer would reach is that Miss Maggie Orr contracted her fever at Gray's; that it is highly probable that Mr. Orr and Miss Carrie Orr did also, and that only the cases from the 20th on were contracted from the infection of Orr's house; infected by some (it need not have been Langdon) of those who were sick in it.

Appendix III.

Obiter dictum.—Broadly the question to be considered, and to which the data in the preceding paper may be contributory, is this: Is the time between the development of the case which infects its environment and the next other cases contracted therefrom (i. e., from the environment) usually so definite that a general statement of the limits of this time can be made?

So far as the writer knows, this (general) subject is not discussed in any systematic treatise on yellow fever; yet it is alluded to in several brochures and is now recognized (at least, as a general working hypothesis) by many who have observed the spread of yellow fever in places where it is not endemic.[b]

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[a] If my recollection be correct, this house was close to house No. 19, and Mr. J. W. Gray and his sons attended to the comfort of this family and their affairs generally, and I had suspected, although I have no direct evidence, that the infection of this household in October was from this source. It is difficult to be careful for a long time, especially when few died.

[b] Maximilian Corre, who does not believe that a man sick of yellow fever can infect his environment, regarding the disease as a toxemia, not an infection, probably has something on this subject, as there is an allusion to a subject involved in the "extrinsic incubation" of yellow fever in one of his lesser works. The writer has been unable to see the work alluded to (also one of Corre's) and at present has access only to his own notes.

The time from the infecting to a secondary case obviously consists of three periods:

(1) The time from the development of the infecting case to the time the environment is capable of developing infection in other men, plus

(2) Time the individual in question is exposed to the environment before he contracts the disease, plus

(3) Time from the date of contracting the disease to its development in him.

In the general case all three are variants and, while this "time" includes all three, by itself it would give us little chance of determining any one of them. It may, however, be made a factor in that determination if we have other data.

It is exceedingly desirable from a practical standpoint to determine the limits of the "period of incubation" of yellow fever, and it was on this subject that the writer was engaged (since 1887), when he was impressed with the general uniformity of time interval between first and secondary cases in a number (5) of instances. Inquiry of more experienced observers showed that the phenomenon had been observed by others, and while further observation and inquiry showed that the uniformity first observed (sixteen to eighteen days) was accidental and closer than was generally found, yet there is much evidence to show that it is usually "in the third week" (John Wall, of Tampa), or better, "usually not prior to the third week" that secondary cases develop.

It is the belief that the secondary cases follow immediately on the infecting case that causes the laity to doubt (generally to deny) the diagnosis of yellow fever, "because it has been ten days and no case has developed among the family."

The sanitarian can not take this comfort to his soul (it would be a comfort to him were he the discredited diagnostician himself), or that which springs from the hope that the case did not infect its surroundings until a much longer time has elapsed. There is, of course, no definite limit of time at which we would call the situation "safe" or "unsafe," but hope of safety increases with the passage of the third week, and as the time beyond this passes.

This law (one will admit it at least as a working hypothesis) is also of value in predicting the progress of an epidemic which will spread. From the first (infecting) case to the first group of cases, infected at his house, is generally from two to three weeks. These form new foci (the original one remaining active), and in from two to three weeks more the second group of cases appears. At this time, four to six weeks, the fever should be "scattered" in tertiary foci, just beginning. Prior to this it is found only in those who have had a common exposure, seldom then in more than four to eight places, although it is not the number but the common exposure that is in question.

A NOTE ON THE SPREAD OF YELLOW FEVER IN HOUSES—EXTRINSIC INCUBATION.

By Surg. H. R. CARTER.

It is well known that when a case of yellow fever develops in a house, the house (or its contents) may become infected, i. e., endowed with such properties that people susceptible to yellow fever may contract the disease by visiting or residing in the house. Now, there is evidence to show that a certain (not inconsiderable) time from the development of the infecting case of yellow fever passes before this property of communicating the disease to other people is attained by the place.

It is not meant that the presence of the patient for that time, or even at a certain stage of the disease after the beginning (analogous to what we probably have in smallpox), is necessary to contaminate his environment. There is evidence to the contrary. For instance, at Lauderdale, La., an isolated way station on the Texas Pacific Railroad, the agent, Mr. L., developed yellow fever (contracted elsewhere) October 8, 1897. He began work as usual that day; complained of malaise during the day, but stayed in his office attending to his work until the evening, then went to a shanty some distance off and reported sick next morning. He died. The house was vacated, and, I think, burned. His successor, Mr. B., used the same office during the day—it not being considered contaminated by so slight and so short an indisposition—but lived in a section house about a mile farther off. During the night of November 8, or early morning of the 9th, this man sickened with yellow fever, having been apparently well when he went to bed. He in the early morning took the train for Donaldsonville, where he died November 13. Being now afraid of the office, his successor, Mr. McG., moved the telegraph instruments down to this section house, making it both office and dwelling place. He developed yellow fever December 4, and died December 11. These were the only cases in the neighborhood.

Here we have in the first case a patient sick less than a day in the office, infecting it, and a subsequent occupant (working in it continuously) developing yellow fever from it twenty days later. In the second, a patient sick not over half a day in the section house, infecting it so that a subsequent occupant, living and sleeping continuously in this house, developed yellow fever twenty-five days thereafter. In both cases, then, the houses showed infection, although the patient's stay in them was very short, and only in the beginning of the disease.

Nor do we mean that the infection of the house is at first slight, and gradually, from new increments from the patients or otherwise, increases, and that the escape from fever of those living in the house soon after the introduction of the infecting case is due to the slight degree of infection, and that the development of yellow fever in those living in, or visiting it, later is due to the increased degree of infection.

Of course, in any disease in which the patient infects his environment the degree of infection of the environment increases with the length of time the sick man remains therein. If the cause of disease be a saprophytic micro-organism and the environment furnishes a suitable culture medium, the infection also increases with the time since the first contamination of the environment, whether that contamination be continuous or not. With such diseases, then, the chance of contracting the disease from an environment is less soon after the development of the case which infects it than later, and this chance is approximately proportioned to the length of residence of the patient and the time since his introduction. In other words, of susceptible people visiting the house at different times a lesser proportion of those who go there soon after the introduction of the infecting case will contract the disease than of those who go there later, and this proportion will, for a short time at least, be proportional to the length of time after the introduction of the primary case.

What we have observed in yellow fever does not seem capable of this explanation. None of those visiting or living in a house only up to "—— days" after the development of the primary case, and not afterwards, contracts yellow fever, while many so exposed afterwards do. There is no gradual increase with the increase of time of the proportion of those exposed who contract it. On the contrary, the secondary cases generally appear more or less in a group, after a considerable interval from the primary case. For instance:

Mrs. A., and E., a young child, came from Ocean Springs to a country house in north Mississippi, near Edwards. Mrs. A. developed yellow fever the day of arrival, August 8, 1897, and E. the next day. There were 12 persons in the family. No other cases occurred until the night of August 21, over thirteen and one-half days, when one other member of the family sickened, and by the 26th all 10 had developed yellow fever.

S. W. G. developed yellow fever, contracted elsewhere, in a country house in north Mississippi on August 6. No other case developed until August 23. Yet by August 25 five others besides the one on the 23d had developed yellow fever. These were all that resided in the house.

The above are typical examples of the spread of yellow fever in hot weather in a house where no precautions are taken, and to the writer seem not explicable by a gradual increase of the degree of infection from the development of the first case. It is rather as if the houses were at first incapable of imparting infection to those exposed to it, which property was acquired (developed) later. Let us assume this to be true, and call this period between the contamination of the house by the patient and its becoming capable of imparting the disease to those exposed to it "the period of extrinsic incubation." This expression (from A. Corre) is fairly suitable, as it represents the time during which the infection derived from the patient is present but not patent in the environment, just as the infection derived from the environment is present but not patent in the patient during the time of his "intrinsic (?)" incubation. No likeness is predicated between the processes.

It is the time taken for such an evolution of the infection, derived from the patient, as renders the environment patently capable of imparting the disease to other men.

We have said "there is evidence to show" that a certain time elapses from the development or introduction of the first case before the disease can be contracted from the environment. The nature of the question admits of only negative evidence. The most that can be expected is to show that susceptible people, visiting or living in a house during —— days after the development of a case of yellow fever therein, and not after that time, do not contract yellow fever. Evidence of this kind is cumulative, and is convincing only if in considerable mass. So far as a few cases of people visiting a house under the condition named and escaping fever is concerned, the evidence is of little value. The houses may have escaped infection altogether—this is common enough; or the house having been infected, the people, although exposed to infection, have not contracted fever at this exposure. This also is common. Yet the only way to show that a place can not communicate disease is to show that it does not, opportunity being offered, communicate it; and if we find many such instances, the evidence becomes of more weight, especially if developments show the house to be infected later and the people susceptible. If in addition we can find no case in which the contrary takes place, i. e., no person developing yellow fever who has been exposed to an environment only under the above conditions, we have supplied all of the evidence which the question admits, and it is convincing in proportion to its mass.

I. Let us take, first, a class of cases, viz, those that occur on vessels at quarantine stations after disinfection. These cases occur aboard ship, and the vessel is disinfected again and kept under observation —— days from this second disinfection. As a rule, but a short time elapses between the development of the case and the second disinfection of the vessel. Yet some time elapses, especially if they develop in the early night and other vessels are at the disinfecting wharf, etc., or, as has happened, when the diagnosis is not made at once; and, as we have seen (vide the Lauderdale cases), the presence of a patient is needed but a little while to contaminate an environment. Yet no cases of yellow fever have developed at quarantine from exposure to infection left by these cases.

Here we have a number of people—from 6 to 75 in each instance—exposed to an environment shortly after the development therein of a case of yellow fever, the time of such exposure being from, say, half a day to five days. Yet the records of five such vessels (seven cases) at the Louisiana quarantine—one disinfected three days after development of the case of yellow fever; of one at the Tampa Bay station, and of five treated by the writer, one disinfected three and one-half days and one five days after disinfection—give no case of yellow fever contracted from infection induced by these cases.

II. In the same class must be included the cases in which houses are disinfected soon after the occurrence of a case of yellow fever. In the little epidemic at Orwood in 1898 an opportunity was offered to do this in a few cases. I quote from Assistant Surgeon Von Ezdorf's report:

> An attempt was made to disinfect houses where the disease had occurred in one or two of the family, to prevent secondary infection. This was done in five houses. One house was reinfected [by a new case contracted elsewhere] twenty-eight days

after the disinfection. All were successful. Six foci were thus destroyed before secondary infection.

1. One house, 5 in family, 1 sick, no recurrence.
2. One house, 9 in family, 1 sick, no recurrence.
3. One house, 5 in family, 1 sick, no recurrence.
4. One house, 8 in family, 1 sick, no recurrence.
5. One house, 3 in family, 2 sick, no recurrence.

Here we have five houses in each of which yellow fever had occurred disinfected soon afterwards, and with no subsequent developments, although they aggregated 24 nonimmune inmates, while in the other houses of this community the fever once introduced generally spread through the family, extremely few escaping.

With these should have been grouped two houses similarly treated at McHenry, Miss., and with the same result, but the notes of which have been lost. Nor is the interval between the development of the case of fever and the disinfection known for these houses save in two cases.

For house No. 4 it was seven days, and for one (which one is unknown) two days.

The writer had advised him (Von E.) to disinfect to prevent secondary cases up to ten days, but to make the interval as short as possible. It was found, however, impracticable, save in one instance, to disinfect until the patient was convalescent, as the family were afraid to have the patient moved into a tent in the beginning of his sickness. It will be safe to put this interval, then, as between four and ten days for the other three.

The expression "secondary infection" is evidently used to mean that condition of the house in which infection can be contracted by one visiting or residing in it, the so-called "secondary" cases.

Note that the evidence here is not only that five houses where yellow fever had existed were disinfected soon after development without secondary cases, but also that in no house (although only five) disinfected soon after the development of the first case did secondary cases arise.

III. There are some instances of people visiting or living in houses in which yellow fever occurred, moving away soon after.

(1) C., an Italian tailor, developed yellow fever at Franklin, La., October 7, 1897, and died October 13. On the 14th, eight days after, the inmates of his house—9 in number—were removed from the house and placed under observation, and the houses adjacent vacated. None of these people developed yellow fever. A case, which was followed by another, occurred in a house across the street, which was narrow, October 22 or 23.

(2) C. L., of the same town, developed yellow fever October 20, and died the 26th. On the same day—six and one-half days after inception of his case—the 5 inmates of his house were moved and placed under observation, and the house and the adjacent houses vacated. None of these people developed yellow fever. Two cases developed in a house just back of it, to leeward.

(3) S. W. G. developed yellow fever at a country house at Orwood, Miss., August 6, 1898. A number of people visited this house. Of 8 that we could trace who visited it prior to August 16 and not afterwards, none developed yellow fever, while of 34 people there subsequently visiting or residing 33 developed yellow fever; 3, however, had other exposures.

(4) Mrs. T., Orwood, Miss., developed yellow fever August 31; Mr. T. on September 1. Both contracted the disease elsewhere. There were 10 in the family. All the children were in the house, of 2 rooms, until September 6, the 3 youngest in the room with the 2 sick people. At this date—six days after the first case—5 of them were isolated from the house. None of the 5 developed yellow fever, while the 3 who remained all did so.

(5) Col. R. developed yellow fever, contracted in Edwards, Miss., on September 16, 1897, in a country house. The diagnosis was made on the 17th; the next day all of the family left save 4. None of the 10 who left developed yellow fever. All of those who remained did so; the first 3, seventeen, eighteen, and nineteen days after, and the fourth later.

(6) D. C. developed yellow fever, contracted elsewhere, September 10, 10 a. m., at a country house near Orwood, Miss. The family consisted of 8 persons. The house was burnt and everything disinfected September 17. None of the remaining 7, who had all been residing continuously in the house of two rooms, developed yellow fever.

(7) Dr. W. developed yellow fever August 27, in Water Valley, Miss. There were 10 persons in the family. September 1, all save Mr. W. left and went into the country. None developed it until they returned to the house September 24, when all of them developed yellow fever, the first three days after return. This house had been disinfected just prior to the return of these children, but unquestionably not successfully.

(8) With these single houses we should group the results of the little "Observation Camp" at Jackson, Miss., in 1899. In this camp were received only the inmates of houses in which a case of yellow fever had occurred, and the attempt was made to get them to come away from their houses as soon after the development of the case as practicable. Many came within the first two or three days. Not a few cases of yellow fever, however, were not diagnosed for a few days, and in not a few others the family declined to accept the diagnosis, or failed to realize the gravity of the disease until several days had elapsed and the patient was very ill or dead, when they would come out to the camp. Forty-nine persons, all white, came to this camp; all, as stated, from houses in which yellow fever had occurred. None of them developed yellow fever. None of them were expected to do so. Yellow fever developed in a certain number of the houses from which these people came among those remaining to care for the sick, although this was done by immunes as far as possible. People were not taken from houses in which cases had been contracted.

IV. Finally, there is the large and, to the writer, convincing class of observations of the spread of yellow fever in a house (or vessel) infected by some one who has contracted the fever elsewhere developing the disease in (or aboard) it. It is necessary for these observations that we know: (1) The dates of development of the infecting and secondary cases; (2) that the inmates of the house have resided there continuously from the development of the first case to their own sickness; (3) that they have been exposed to no other source of infection save at their own premises. And all these things must be known beyond cavil. In all cases fulfilling these conditions there is a considerable interval of time between the infecting and the first case contracted in the house; then such secondary cases come rapidly, sometimes in a bunch. The two instances in the first part of this paper are typical. Here are a couple more:

(3) M. C. developed yellow fever at Nitta Yuma, Miss., September 11, 1897, at Mr. B.'s house. Mrs. B. developed yellow fever September 27, at night. Miss T. on September 28, J. S. on October 1, Miss B. on October 2, Mr. B. on October 6, Mrs. S. on October 8, and J. P. on October 8.

(4) C. H. P. developed yellow fever at Nitta Yuma, Miss., October 8, 1897, in Mr. D.'s house. J. D. developed it on October 21, H. D. on October 21, J. T. R. on October 21, M. J. E. on October 23, S. S. on October 23, Mrs. D. on October 24, and R. D. on November 24.

Of these four houses the interval between the first (infecting) and the next (secondary) case is, for Mr. A.'s house, 13½ or 13¾ days, and then 10 cases in 5 days; Mr. G.'s house, 16½ days, and then 6 cases in 2½ days; Mr. D.'s house, 13½ days, and then 6 cases in 3 days and 1 later; Mr. B.'s house, 16 days, and then 4 cases in 6 days and 3 later.

The writer made a study last winter (New Orleans Medical and Surgical Journal, May, 1900) of the spread of infection in houses at Orwood and Taylor, Miss., fulfilling the required conditions. The findings were all similar to the above, and are here reproduced in tabular form:

TABLE I.

House.	Infecting case.	First secondary case.	Interval in days.	Number of secondary cases.	Number of people in house.	
Orwood:						
1	Aug. 6	Aug. 23	16½	6	7	First secondary case was in existence Aug. 22, 5 p. m. Interval, 16 + days.
2	Aug. 29	Sept. 13	15	3	4	All developed in one day.
3	Aug. 28	Sept. 18	20	4	5	
4	Aug. 31 Sept. 1	Sept. 20	19½	5	7	Two infecting cases.
5	Sept. 3	Sept. 26	26	6	7	
6	Aug. 31	Sept. 22	21½	4 or 5	6	Source of infection in one secondary case doubtful.
7	Sept. 4	Sept. 20	16	2	(?)	
8	Sept. 2	Sept. 22	20½	1	(?)	
9	Aug. 29 Aug. 30	Sept. 9	11½	1	3	Two infecting cases. Interval, 11 days 15 hours.
Taylor:						
10	Aug. 7	Aug. 27	20	13	14	
11	Aug. 17	Sept. 2	16	8 or 10	11	All in house had fever, but two may have contracted it elsewhere.
12	Aug. 10 Aug. 11	Sept. 25 or Sept. 28	15 or 18	3 or 2	5	Two infecting cases; one secondary case may have contracted it elsewhere.

House 1 is Mr. G.'s home, mentioned before in this paper.

In addition to the above, the writer has records of a few other houses and a few vessels. These will not be given, but wherever he has been able to trace the spread of yellow fever in a house which fulfills the conditions I have mentioned, the existence of this interval, not less than 11½ days, usually over 14 days, has been found. Now, this interval is habitually greater, and considerably greater, than the period of incubation of yellow fever. For instance, in the Gray house, at Orwood, the minimum interval is 16 days, while the period of incubation observed by the writer of six cases contracted about the same time from a single exposure at this house were 3¾ days, 4 days, 3 days, 3½ or 4 days, 3 days, 5¾ days, respectively. It is obvious that yellow fever was not contracted by those residing in this house for a considerable time after the development of the first case, for there is no reason why these six residing in the house from the beginning should have an incubation of from 16½ to 19 days and the six who visited the house once afterwards should have incubations of from 3 to 4½ days.

But the above statement is general. In all cases which I have been able to observe the interval between the infecting case and the first secondary case is habitually considerably greater than the period of incubation of yellow fever.

Yellow fever, then, is not contracted in any of these houses by those residing continuously in them until a considerable time (in days) after the development of the infecting case, although these same inmates do contract the disease from the same houses later. This latter fact, as I said at first, strengthens the position that at first, when none took the disease, the house was not capable of transmitting it, and that later it became so. To sum up:

I. Cases of yellow fever which occur aboard ship after disinfection at maritime quarantine stations have not been followed by any others among the crew.

Eleven vessels disinfected from "at once" to five days after the first case.

II. Cases of yellow fever which occur in houses disinfected soon after occurrence were not followed by other cases among the inmates.

Five houses—24 susceptible inmates—disinfected, one seven days, one two days, and the rest probably four to ten days after first case. In no case has the contrary been observed.

III. Cases of yellow fever which occurred in houses vacated soon after have not been followed by other cases among the inmates leaving, although cases occurred among those who remained in the houses or in the neighborhood.

From seven houses 46 inmates were removed from two to eight days after development of the first case. In no case has the contrary been observed.

With these consider the 49 people moved from houses in which yellow fever had occurred to the Jacksonville "observation camp," none of whom developed yellow fever.

IV. Cases of yellow fever which occur in clean houses are not followed by other cases among the inmates exposed to no other infection until after such time as shows that the disease was not contracted for a number of days after the development of the first case, although these same inmates do develop yellow fever from these same houses later.

Fifteen houses, with 81 susceptible inmates subsequently developing yellow fever, here reported; others have been observed. In no case was the contrary observed.

As before said, the class of evidence here presented is convincing in proportion to its mass. Whether it is enough to convince, the reader must determine. Yet, in the writer's opinion, the phenomenon of the "interval" in house infection is itself sufficient.

It may be that the force of this may be plainer if the full history of one such "house infection" be given in detail. We will take one already mentioned in this paper:

House 1.—Gray house, Orwood, Miss., 1898: S. W. G. developed yellow fever (contracted at Taylor's) August 6, 11 p. m; L. G., roommate of the above, August 23, 11 a. m.; A. G., August 24, 11 a. m.; S. G., August 24, 7 p. m.; C. G., August 25, 2 a. m.; C. G., August 25, 12 midnight.

All the above were inmates of this house, and were the only inmates living there continuously up to the 25th.

In addition the following cases were contracted here by visitors and others:

(1) L. O. spent the evening here August 18, single exposure; developed yellow fever August 23, 5 p. m. (2) G. M. was at this house 2 to 6 p. m. August 25, single exposure; developed fever August 29, noon. (3) P. S. was at this house several times August 25 to 28; developed fever August 29. (4) P. R. was at this house night of August 25, single exposure; developed fever August 29. (5) M. O. was at this house August 24 and 27; developed fever August 30, 1 a. m. (6) J. R. was at this house nights of August 25 and 27; developed fever August 30, night. (7) W. S. was at this house August 25, 28, and 30; developed fever August 30, night. (8) J. T. was at this house August 25 and 30; developed fever August 31. (9) A. J. was at this house night of August 27, single exposure; developed fever August 31, morning. (10) G. L. S. was at this house August 25, 26, and 27; developed yellow fever August 31. (11) H. S. was at this house several times to August 30; developed fever September 1, 2 a. m. (12) Mrs. J. T. was at this house August 29 (10 to 4 p. m.), single exposure; developed fever September 11, 4 p. m. (13) Mrs. I. C. was at this house August 29 (10 a. m. to 4 p. m.), single exposure; developed fever September 2, 4 p. m. (14) W. M. W. was at this house August 27 and 29 (in evening); developed fever September 2, 1 a. m. (15) M. K. came to nurse August 28, 1 a. m.; developed fever August 31, 2 a. m. (16) M. C. came to nurse August 27, 6 p. m.; developed fever September 1, 9 a. m. (17) G. S. came to nurse August 29, 9 a. m.; developed fever September 2, 3 p. m. (18) P. D. (colored) came to the house to nurse August 27, 7 p. m.; developed fever September 3, 2 a. m. (19) Dr. M. visited the house on the evening of August 29, returned August 30, and was continuously exposed to date of his illness, September 3, 8 a. m.

This list includes nearly all nonimmune to yellow fever who visited this house about this time. Of the remainder, one physician developed yellow fever August 27, but may have contracted his disease elsewhere. His successor was Dr. M., above. A third, relieving him, succumbed later in the season, date not known. Of three friends who had been at the house at intervals since August 25, dates not known, two sickened September 6 and 7, respectively, and the third escaped infection from her visit, the only person known to have done so.

Now, here are 20 people, 15 visiting and 5 living, in this house from August 18 to September 4, all developing yellow fever by the latter date. Note that 6 of them were of a single exposure, incubation of from three to five and three-quarter days, and that the exposures of the rest were not prolonged or often, yet all developed fever, and all developed it within a few days after their first exposure, and that the 3 whites who entered the house to nurse developed fever within from three to four and one-half days, as did the physician; yet the 6 habitual inmates of this house lived there with no sickness from August 6 to 23. Obviously the condition of this house as regards power of communicating disease must have been very different soon after August 6 from what it was, say, from the 20th on. Taking into consideration the bunch of cases among these inmates from the 23d to the 25th and the fact that nearly everyone who visited this house at this time and after developed fever within a few days, whether he had one exposure or more, one is led toward the conclusion that this house was not capable of imparting infection for some time after the development of the infecting case on August 6. Since all such houses give the same finding, although few so flagrantly as this one, the conclusion seems to the writer justifiable and the point proven, because, although one may be exposed to infection many times without contracting disease, and yet contract it on another exposure, yet if a large number of people under varying conditions be exposed for a considerable interval of time some of them will contract it at such exposure. Conversely, if of a large number of people thus exposed in a certain place none contracted the disease, it is fair to say that the place is not capable of communicating infection. Certainly there is no other evidence possible.

I have not attempted to determine the time of extrinsic incubation. I have not the data to enable me to do so definitely in any particular case. Suffice it to say that "while it takes but a short time—less than a day—after the development of a case of yellow fever for a patient's environment to receive infection, yet it requires a considerable number of days before this environment is capable of imparting yellow fever to other men."

The observations on house infection, the most definite bearing on this subject, seem, however, to give us a clew. We have noted the "interval" from the infecting case to the first secondary case as being usually considerable, and have determined it in a number of cases. Now, the interval from the infecting case to any secondary case from it is composed of the sum of three periods: (1) The period of extrinsic incubation for the environment, plus (2) the time the individual in question was exposed to infection before he contracted the disease, plus (3) the period of incubation of the secondary case. In the general case all three are variants, the middle term depending on individual exposure and individual susceptibility to the disease.

Yet where there are many secondary cases—as in house No. 9, Table I, thirteen cases—this term in the interval to the first secondary case should become small, because of so large a number contracting yellow fever in a house some one of them must have contracted it soon after exposure. The argument is stronger when we consider five houses (see Table II) having a total of thirty secondary cases, with an interval of sixteen days (fifteen and one-half to sixteen and one-half days) between the infecting and first secondary case.

Surely here the middle term must be small. Some one of these thirty cases exposed to five different sources of infection must have contracted fever very soon after exposure.

As the usual limits of the period of incubation, the last term of the sum, are fairly known, it is evident that a knowledge of this "interval" in a sufficient number of instances is sufficient to determine approximately the usual period of extrinsic incubation.

I have found the interval between the infecting and the first of the secondary cases in a house as nearly always over fourteen days, while later these same houses give periods of incubation of from three to less than six days; and when people go to visit or reside in them some of these people, usually several, develop yellow fever in the same time, less than six days, from the first exposure. From this I would place the period of extrinsic incubation as generally not less than ten days; indeed, it may fairly be placed somewhat higher, as there are few instances in which any inmate of such a house has contracted yellow fever within ten days from the introduction of the infecting case. Its limits, doubtless, vary, but probably not very considerably. The intervals between the infecting and the first secondary case (when there are many secondary cases) do not. The inferior limit is probably not far from below the ten days which I have suggested as generally the minimum.

The following table of "intervals," most of which have been given in detail elsewhere, illustrates this. Fractions of days have been omitted.

TABLE II.

Number of houses.	Interval in days.	Number of secondary cases.	
1	12	1	11 days 15 hours.
1	13	6	
1	14	10	13¾ days.
2	15	5	One may have been 18 days.
5	16	30	
1	18	7	
1	19	5	19½ days.
2	20	17	
3	21	8	
1	23	6	

From this, from ten to seventeen days after the development of the infecting case, seem to be about the usual limits for contracting the disease by the first of the secondary cases, when there are many of such cases in a house.

It is understood that the above determination of the period of extrinsic incubation is tentative and approximative only.

There is a practical application of this doctrine. When a case of yellow fever develops at a maritime quarantine station, aboard a vessel after disinfection, and the vessel is disinfected promptly (within a few days), she need not be detained longer than to cover the period of incubation from the first disinfection, instead of from the second one as has been the case. The second disinfection being done before the vessel is capable of imparting infection to men, the completion of the first disinfection was the last exposure of any of her personnel to a chance of contracting the disease, and from this the detention should date. Similarly, when a case of yellow fever develops in a clean house, the inmates of this house who leave within a few days (if exposed to no other source of infection) may be permitted to leave without quarantine detention, for they will not develop yellow fever.

Since writing the above, the experiments of Major Reed at Quemados have been published. It is obvious that what we have here called "the period of extrinsic incubation" is the time he finds to elapse from the infection of the mosquito by biting a yellow-fever patient to the time it, the mosquito, becomes capable of communicating the disease to man. This he places definitely, in his experiments, at not less than twelve days, and up to eighteen or more days, somewhat in excess of my probable finding. Yet the agreement in time is fairly close, and Reed's theory agrees absolutely with the conclusions of this paper. Under it the disease could not be contracted in a house until this number of days had passed since the mosquitos had access to the patient.

As is natural, experiments which one makes, and of which he controls all the conditions, give conclusions much more definite, and hence more valuable, than we are apt to obtain by observing never so painstakingly experiments which are accidentally made for us in the ordinary course of an epidemic.

A RÉSUMÉ OF THE RECENT FOREIGN WORK OF THE MARINE-HOSPITAL SERVICE.

By Surg. R. M. Woodward.[a]

The acquisition of new territory by the United States during the past few years has brought with it many new and important duties, not the least of which is the protection of our country against the invasion of epidemic disease from these possessions and the protection of the possessions themselves against such invasion from the outside. Congress has placed these duties upon the Marine-Hospital Service in each case where action has thus far been taken, and this brief paper is for the purpose of presenting an outline of the recent foreign work of the Service.

At some of the ports in question a very good system of quarantine was found, but it is believed that with the advent of modern disinfecting machinery and the institution of new methods of inspection and disinfection these safeguards can be increased in efficiency.

No one doubts the advisability of checking a disease upon a foreign shore before it is given an opportunity to reach the ports of the United States. So long as epidemic disease is prevented from being carried across the sea the general public feels much more at ease than when the same appears, at more or less frequent intervals, at the quarantine stations on our coasts. The value of the services of officers stationed at foreign ports is not to be estimated alone by the actual quarantine work which they perform, but also by the sanitary reports which they transmit to the Bureau, keeping this country thoroughly posted as to the progress of epidemic disease in foreign countries. All of our new possessions and dependencies have cable communication with the United States except Hawaii, and it is to be hoped that but a short time will elapse before this is established. With the exception of a few isolated regions, an outbreak of epidemic disease in any part of the world can be known in Washington within twenty-four hours after its occurrence.

In past years one of the greatest dangers to the health of the United States has been the city of Habana, where smallpox has prevailed almost continuously and where yellow fever has occurred in epidemic form each season. A medical officer of the Marine-Hospital Service has been stationed at Habana for a number of years, mainly for the purpose of issuing bills of health to vessels bound to the United States and for submitting sanitary reports concerning the health of Habana and its vicinity.

When Cuba came under the protection of the United States, the coast of the island was divided into five divisions for maritime quarantine purposes, each division being under command of a commissioned officer of the Marine-Hospital Service, located at the principal ports thereof, namely, Habana, Matanzas, Nuevitas, Santiago, and Cienfuegos. At each of the smaller ports, acting assistant surgeons were appointed under the general supervision of the division officers. Twenty-six officers of the latter grade are now on duty in Cuba.

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[a] Read at the annual meeting of the American Public Health Association, held in Indianapolis, Ind., from October 22 to 26, 1900, inclusive.

The disinfecting barge *Protector* was sent to Habana in March, 1899, and did good service as a floating disinfecting plant. It was anchored in the harbor and was fully equipped with disinfecting machinery, consisting of steam chambers, sulphur furnace, bichloride pump, formaldehyde apparatus, bathing facilities, etc. The *Protector* has been returned to the United States and its place taken by the *Sanator*, a disinfecting steamer of larger dimensions, being probably the most complete floating disinfecting plant in the world. The officers of the Service on duty at Habana are treating gratuitously the crews of all vessels arriving in the harbor, and this keeps them thoroughly posted on any disease which may appear among the shipping.

All means lessening the amount of yellow fever in Habana diminish the danger to the United States from that port. The outbreak this summer has been largely among newly arrived immigrants from Spain, who have been in the habit of landing at Habana and remaining in the city for several weeks until they could secure employment on the estates. Governor-General Wood has suggested a plan to lessen this danger, namely, to have the immigrants inspected, as is now the case, by the marine-hospital officers, upon arrival, and then to transfer them immediately to an immigrant detention station which will be constructed near the village of Triscornia, across the harbor from Habana. Here they will be held until distributed to the country districts, without coming in contact with infected foci in the city proper. This station will be controlled by a board of directors, of which the senior marine-hospital officer located in Habana will be a member.

The former Spanish quarantine station at Mariel, about 21 miles from Habana, has been transferred to the Service, and the buildings have undergone many repairs and improvements. It is located on an isolated neck of land, separated from the country back of it by a stone wall. Eighteen buildings were found on the reservation, well planned and arranged for the purposes of detention and segregation. This is now one of the most complete plants in existence. A small steamer has been purchased for use at Habana and for plying between the city and the Mariel station. This is in addition to a launch and tugboat which are in constant use in the harbor.

The hulk of a sailing vessel was purchased, remodeled and equipped as a floating disinfecting plant with all necessary modern disinfecting machinery, and was stationed at Santiago, Cuba, where it has done good service. It has been very aptly named the *Rough Rider*. Similar barges are now ready for the ports of Matanzas and Cienfuegos, Cuba, and one will soon be completed for Nuevitas, Cuba. This provides a complete plant for each of the principal ports in the five subdivisions of the coast mentioned above. Vessels at any of the smaller ports requiring disinfection can easily be referred to one of the larger ports for treatment.

While giving due credit to the officers, both national and local, at the quarantine stations of the United States, the absence of an epidemic of yellow fever this season must be largely attributed to the work of the officers in Cuba. The details of their system, which have been perfected by long experience, can not be entered into in the scope of this paper.

With the acquisition of Porto Rico it became necessary to establish quarantine stations in the island, and an act of Congress gave this duty to the Marine-Hospital Service.[a] San Juan and Ponce are the principal ports and are under command of commissioned officers. Nine acting assistant surgeons are stationed at the minor ports of the island.

Miraflores Island, in the harbor of San Juan, was transferred to the Service by the military authorities for the purpose of a quarantine and detention station. It contains 24 acres and is well located for the purpose. The Spanish buildings found thereon have been renovated and remodeled, and new buildings are contemplated. A floating disinfecting plant is now completed and will soon be towed to San Juan. The latest model of steam launch has been purchased from the Navy and is in use as a boarding vessel at that port.

The harbor of Ponce is not landlocked, and it is therefore impracticable to station a floating plant there. It is, however, contemplated to establish such a plant at the port of Guanica, which is about 20 miles west of Ponce, on the southern coast of Porto Rico. This port has a fine harbor, safe in time of storm, and containing sufficient depth of water to permit entry to deep-draft vessels, being the point at which General Miles landed his troops during the Spanish-American war. A small island in the harbor will probably be purchased for locating necessary detention buildings.

Regarding Hawaii, the act of Congress approved April 30, 1900, placed the Marine-Hospital Service in control of maritime quarantine in the Territory and transferred to that Service the quarantine station and grounds on Mauliola Island, in the harbor of Honolulu, together with all the public property belonging to same. There are twenty-two buildings, large and small, on the reservation, which, after some repairs and alterations, are in very fair condition. Steam chambers and some other disinfecting machinery were found at the station, and negotiations are now under way for a floating disinfecting plant in the harbor. Pending the arrival of this plant, a sulphur furnace will be installed at Honolulu on the end of a long pier which now exists in the harbor. A navy launch similar to the one sent to San Juan has been purchased and is now in use at Honolulu.

Inspection stations, with acting assistant surgeons in charge, have been established at the ports of Hilo, Kahului, and Kihei, respectively.

During the recent outbreak of plague in Honolulu, the Marine-Hospital Bureau sent a large supply of Haffkine's prophylactic and Yersin's serum to the medical officer, who tendered same to the Hawaiian authorities, by whom it was used with good effect. The officer there on duty also acted in an advisory capacity during the epidemic and was of great assistance to the authorities.

In the Philippines the chief ports are Manila, Iloilo, and Cebu. Commissioned officers of the Marine-Hospital Service are on duty at each of these ports. The former Spanish quarantine station at Mariveles, on an arm of Manila Bay, about 28 miles from Manila, has been transferred to the Service. Extensive repairs and improvements are now being made, including the construction of a pier. This station will be as complete as the one at Mariel, near Habana. Excellent launches have been purchased for use of the boarding officers at Manila and Iloilo. The traffic by water from the ports of the Philippines and the interisland traffic in the archipelago is enormous; and with plague, leprosy, and smallpox prevailing there at the present time, the services of the officers are invaluable.

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[a] Prior to Congressional action, the Surgeon-General brought about the issue of an Executive order placing the quarantine in Porto Rico under the Marine-Hospital Service until such time as Congress should make other provisions for same.

In Central America acting assistant surgeons are stationed at all the fruit ports, through the quarantine season, to inspect vessels and issue bills of health in conjunction with the consuls. They hold prospective passengers under observation a sufficient length of time to insure their freedom from infection, and disinfect their baggage. Their services prevent delay at domestic quarantine stations of vessels carrying perishable cargo.

When plague appeared in Europe, notably at Oporto, and there seemed danger of its introduction into the United States, commissioned officers of the Service were stationed at all the principal British and continental ports where emigrants embark for this country, namely: Glasgow, Liverpool, London, Southampton, Queenstown, Bremen, Hamburg, Rotterdam, Antwerp, Havre, Marseilles, Genoa, and Naples. They inspected all vessels and passengers leaving for our ports, and disinfected all baggage and cargo requiring such treatment. At the same time they kept the Bureau posted regarding epidemic disease in Europe and the Far East, in addition to submitting many valuable reports upon public health measures adopted by the different cities and countries, and the methods of conducting various lines of commerce involving sanitary risk. One officer was detailed to visit Oporto during the outbreak of plague at that place, and made an interesting report upon the subject. Another officer investigated the rag industry in Egypt, it having been ascertained that a large portion of the rags collected in that country were shipped directly or indirectly to the United States. With the decline of plague in Europe, the majority of the officers were recalled, but one was detailed at each of the following ports, namely, London, Berlin, Vienna, Paris, and Naples, to keep the Bureau informed on epidemic and sanitary matters, and also for the purpose of being within easy call in case of emergency. The wisdom of this detail was shown when plague broke out in Glasgow, two officers being immediately sent to that point and two others to Liverpool. With this skeleton organization in Europe, it would be an easy matter to again establish the inspection at all of the principal seaports on a few days' notice.

An officer is now on his way to Hongkong, who will, in addition to other duties, keep the Bureau posted regarding the danger which may be involved in the return of troops from the Orient to the United States. The Bureau also has a representative at Yokohama and another at Kobe, Japan.

An officer is stationed at Constantinople, who submits valuable information regarding the events of that interesting region, particularly the annual pilgrimages to Mecca.

A representative is at Rio Janeiro, which city is seldom free from some of the quarantinable diseases. One is also stationed at Vera Cruz, Mexico, a port which is always productive of solicitude on the part of those interested in maritime quarantine. This officer has recently made a tour of inspection of the important ports of Central America and the ports of Colombia and Ecuador, in South America, with reference to the danger of transmission of disease from the infected to the noninfected ports from which vessels sail directly to the United States.

It will thus be seen that the principal points of danger in the world are covered by the Service, and, with its corps of 106 commissioned officers and 164 acting assistant surgeons, it is an easy matter to throw a force of men into a dangerous point at any time that the exigency may arise.

The value of the safeguards on this side can not be overestimated, but the officers at foreign ports form an outpost which can only be fully appreciated by studying the details of their work, which the time at my disposal will not permit me to present.

DISINFECTING BARGES.

By M. J. Rosenau,

Passed Assistant Surgeon, United States Marine-Hospital Service,
Director of the Hygienic Laboratory.

A disinfecting barge is nothing more nor less than disinfecting machinery on a floating platform. The same principles which apply to such establishments on land are equally applicable on water. It is only necessary to modify details to meet the conditions of the vessel on which the equipment is installed.

A disinfecting barge may be a complete quarantine plant in itself, including all the apparatus necessary to disinfect a ship and baggage, and the bathing of passengers and crew. It may have, in addition, quarters for officers and station force. In very exceptional circumstances such a barge may also be used as a lazaretto, or in place of barracks for detaining suspects under observation. In the nature of things this latter is not advisable, and a disinfecting barge should not, as a rule, be used for such purposes.

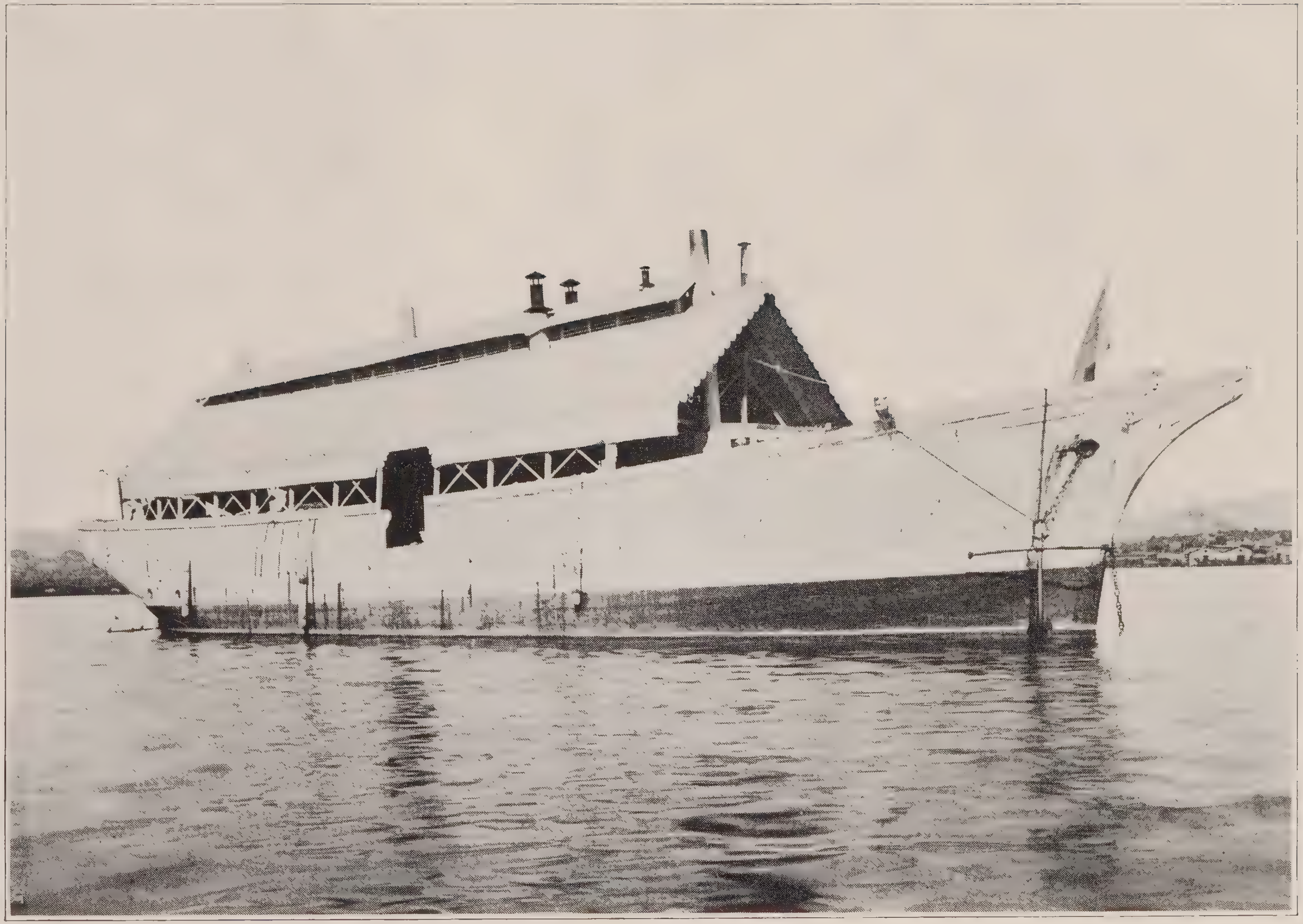
RELATIVE USEFULNESS COMPARED TO LAND PLANTS.

For vessels.—Disinfecting barges find their maximum utility in the disinfection of vessels. For this purpose they are equal, if not superior, to a wharf—certainly better than the average wharf. This is especially true at a busy station where many vessels require disinfection. A barge can handle two or more vessels at once. Few wharves can accommodate more than one large vessel at a time. A barge can go from one vessel to another without much loss of time—fumigating one, bichloriding another, steaming the bedding of a third, etc.; in this way completing the disinfection of several vessels in a day. Large vessels can not come to and from a wharf so handily. It is therefore usually necessary to finish one before taking another, which makes it difficult for the ordinary wharf to disinfect more than one vessel in a day.

For baggage.—A barge may be quite as useful as a land plant for the disinfection of baggage. This depends largely upon the size and capacity of the barge.

In general it may be said that for the disinfection of large amounts of baggage a barge is not well suited. It requires much room to properly disinfect baggage. All the trunks, packages, and containers must be opened and their contents spread out and assorted. After steaming or subjection to formaldehyde they must all be reassembled and packed. This takes plenty of space, and a vessel, at best, is crowded and cramped.

The carrying of many tons of baggage to and from a disinfection barge and the many handlings necessitated by the transfer are expen-



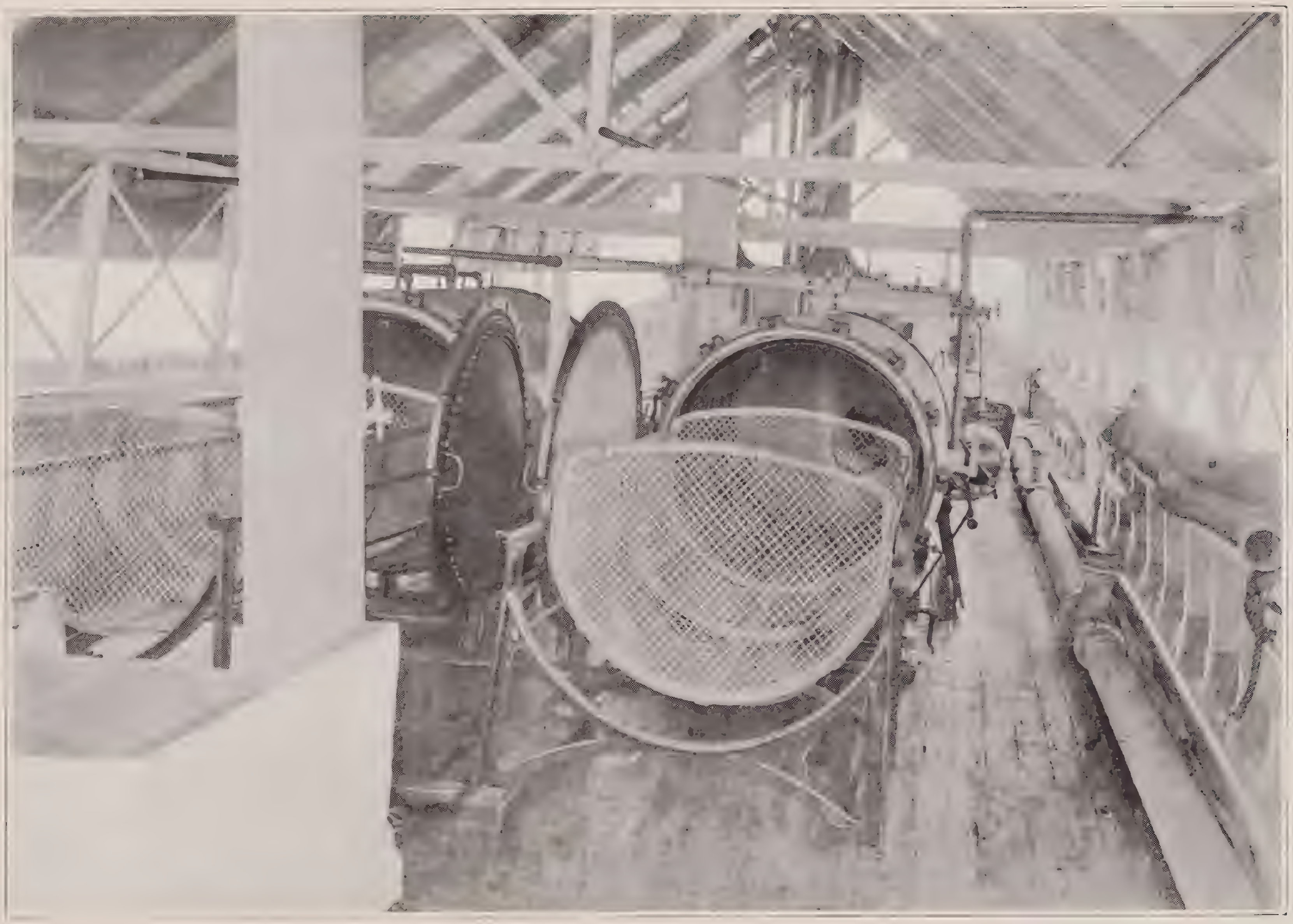
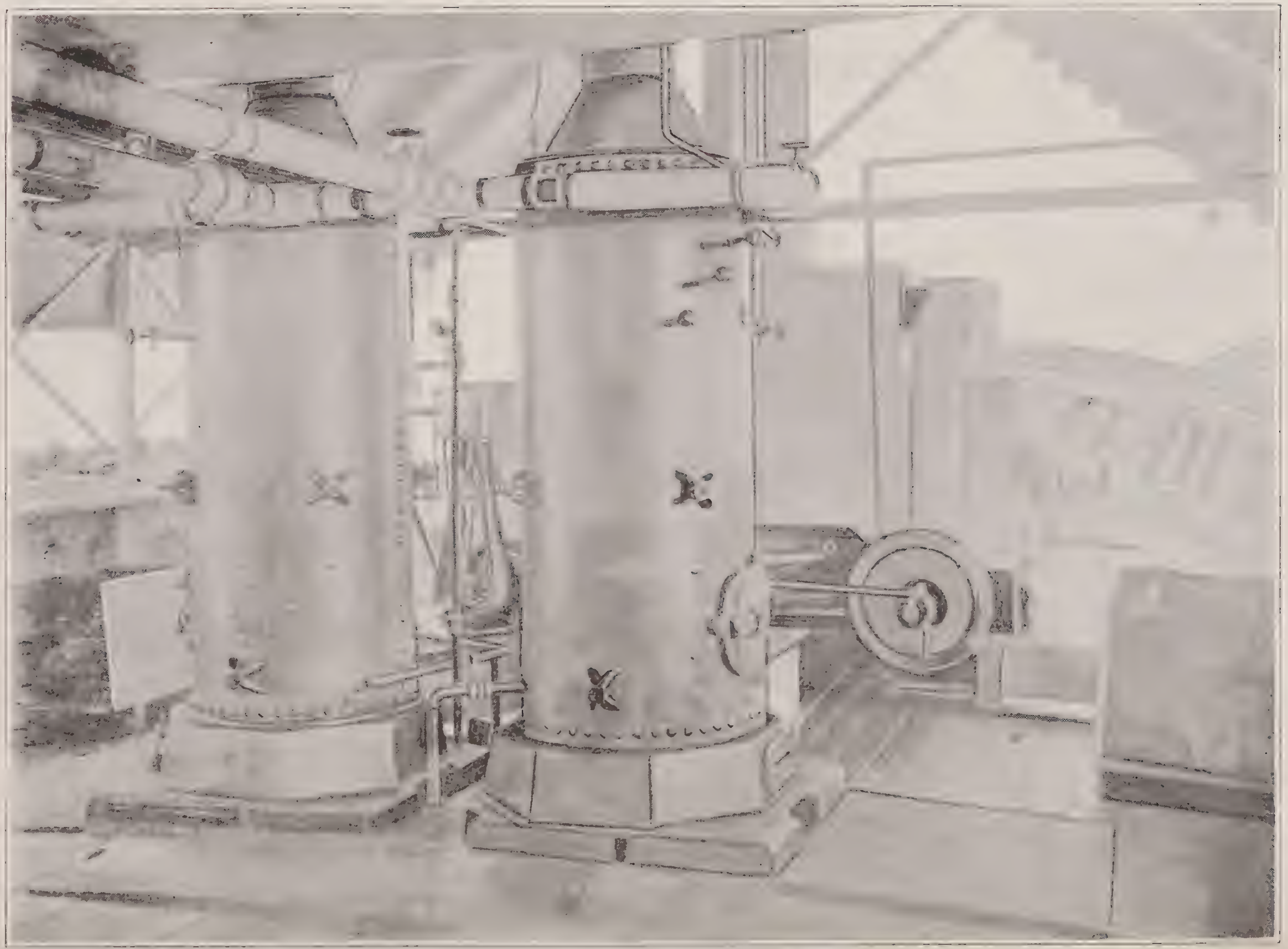


PLATE A.



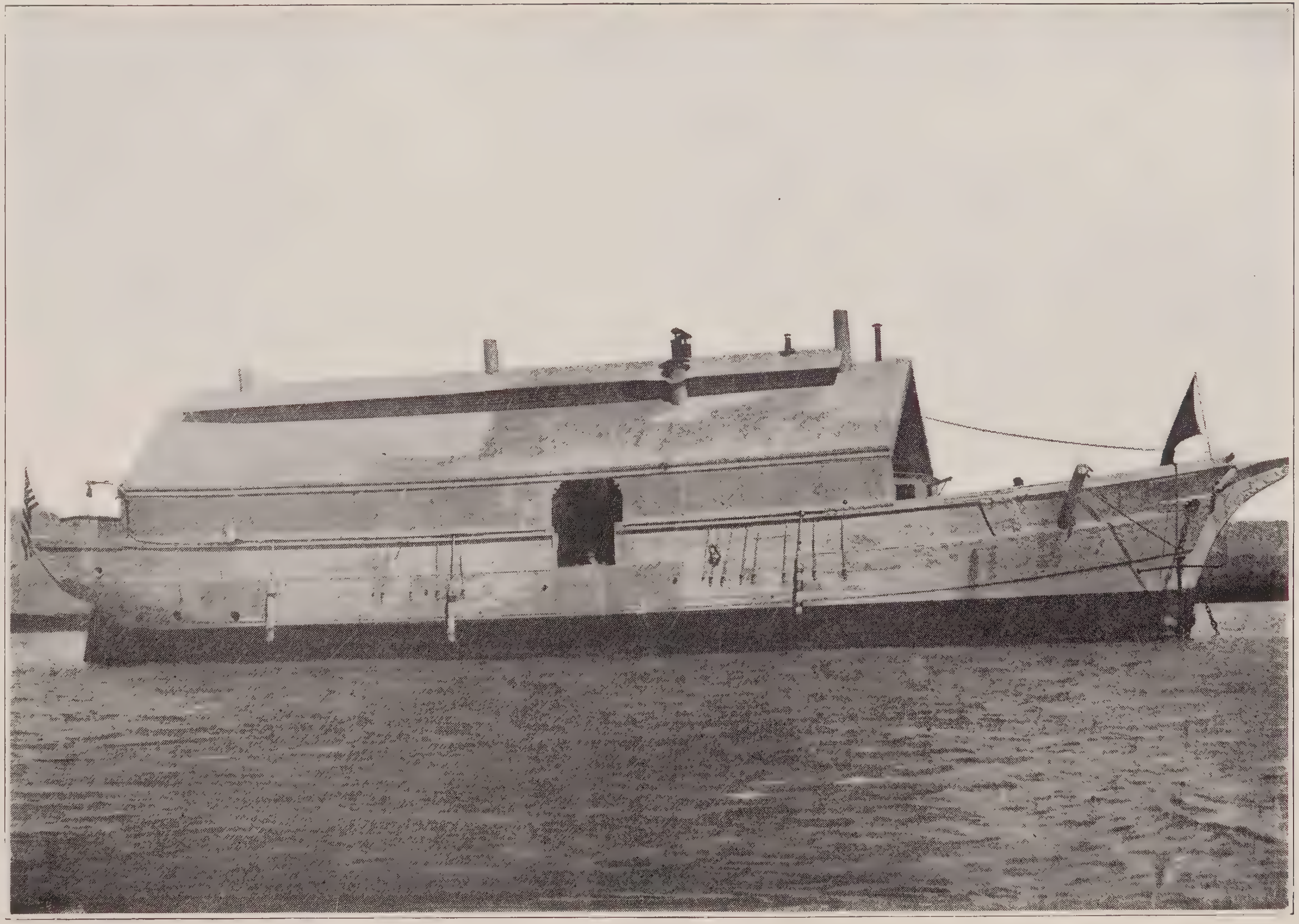


PLATE C.

sive and time-consuming. A barge is well able to handle the clothing and bedding that come from the average vessel, without a large passenger list.

For persons.—Barges are not well suited for handling large numbers of persons who require bathing and disinfection of their body clothing. Although, if the barge is arranged especially for this purpose, as the *Sanator* (see Plate No. 1), this may be done. In the summer of 1898 large numbers of the Fifth Army Corps returning from Cuba were treated by the *Protector* at Montauk Point with marked success. (Plate No. 2.)

It is best, of course, to receive the passengers and baggage from the vessel lying alongside the barge. When such is not possible, and it is necessary to lighter the passengers and baggage, the difficulties are greatly increased and the usefulness of the barge diminished.

A BARGE MAY SERVE AS A LAND DISINFECTION PLANT.

In certain harbors the disinfection barge may lie alongside the wharf, and when such arrangement is possible the barge is practically a land disinfection plant, and may therefore serve a double purpose. The *Rough Rider* did this double duty during the epidemic of yellow fever at Santiago in the summer of 1899. Part of the time she was tied up alongside the dock and there did the municipal disinfection. At other times she was towed down the bay to disinfect vessels and the baggage of passengers. (Plates A, B, and C.)

GENERAL PRINCIPLES OF CONSTRUCTION.

The barge itself may vary much in shape and size. Old wooden hulls, particularly those of barks and schooners, are well adapted to the purpose. They have the decided advantage of being much cheaper than new ones.

If the hull can be built at or near the harbor where it is intended for use it may be built in the form of a flat, rectangular float, similar to those used for transporting railroad cars. (See Plate No. 11.) Otherwise a molded hull is necessary, especially if the barge must go to sea.

There must be not less than 21 by 80 to 90 feet available deck space and sufficient hold for the tanks, coal, and heavy stores. This is the minimum size upon which a small disinfecting plant can be installed.

A disinfecting barge should, as a rule, be constructed so as to have an "infected" or receiving end, and a "disinfected" or discharging end.

An anchored vessel swings either to the wind or tide. When the tide is not strong, as in the harbors of Cuba and the Gulf of Mexico, they always swing with the wind. This is an important factor, for it influences many details in the construction and operation of such a barge. For example, in the Tropics the after end is protected from the breeze and so hot that it becomes uninhabitable. The quarters should therefore be placed forward, where they catch the breeze. When barges swing to the wind the after end should always be used as the receiving or "infected" end, in order to work forward against the wind, thereby preventing the possibility of reinfecting disinfected material through the agency of the wind.

There should be a tight compartment running athwartships dividing the one end from the other, so that there may be no communication except through the disinfecting cylinders.

Disinfectors sometimes take bedding and clothing out of the steam cylinders on the same side they put them in, disinfecting the exposed area in the meantime with bichloride or carbolic solutions. Such a practice may be safe, but is not advisable. All the precautions taken by an operator in the surgical amphitheater to insure asepsis are not called for in all the disinfection which a sanitarian is called upon to do, but the nearear such work approaches the surgeon's standard, the better it is. Imperfect disinfection is no disinfection at all—is worse than none, for it gives a false security.

The general construction of the barge should be plain, substantial, and of material that may be readily cleansed and disinfected. Porous surfaces, dark corners, and inaccessible places are to be avoided as much as possible. Disinfecting barges on active quarantine duty must themselves be disinfected frequently, and on account of the character of the work are prone to be overrun with roaches, bedbugs, and other vermin. These pests are brought on board with the bedding and clothing from other vessels, and there is a never-ending fight to keep the barge clean.

In our country disinfecting barges are mostly used in summer time. This fact has a marked influence on the construction of the barge. The quarantine season against yellow fever is from May to November, and the infectible territory is south of the southern border of Maryland. As yellow fever is the principal epidemic disease that seriously threatens us, it is plain that maritime quarantine finds its maximum activity in Southern waters and in the summer time. As a rule barges must, therefore, be built with a view to working on them in hot weather.

A closed barge with sulphur and steam disinfection going full blast becomes unbearable on a hot summer's day. Barges intended for such work should be as open as possible.

It was my experience that the *Protector*, which is housed in and has the boilers and steam disinfectors in the hold, became very uncomfortable when in operation in the harbor of Habana—even after introducing a double system of ventilation, consisting of electric fans and a centrifugal blower and pipes.

The *Rough Rider*, which is a simpler type of barge, has all her heating surfaces on the main deck, which is roofed over, but not closed in. This arrangement proved to be no more uncomfortable when the barge was in full operation than the surrounding atmosphere, although working in the summer time in the harbor of Santiago, a notoriously hot place.

Barges intended for such use should therefore not have the steam disinfectors in the hold, if it is practicable to place them on deck. All heating surfaces should be well covered with magnesia, asbestos, or other suitable nonconducting material.

The fresh-water tanks, bichloride tanks, coal bunkers, and similar heavy apparatus may well be placed in the hold, where they are out of the way and serve as ballast.

The general management of the machinery, boilers, and other apparatus about the barge will depend somewhat upon the character of the work she is to do.

THE MAIN DECK.

As a rule, a disinfecting barge intended for general quarantine use should have the main deck given up to the work of disinfection.

By placing the disinfecting chambers amidships the deck is naturally divided into a receiving and a discharging end. As much of the remainder of the deck as possible should be kept clear in order to have room enough to handle the baggage, etc., that is to be disinfected. It must be borne in mind that it takes considerable space to unpack and assort baggage for disinfection, and that after steaming, fabrics usually need airing for a few minutes, so that they may dry before repacking.

There are other advantages obtained by keeping the disinfecting chambers on deck instead of in the hold. Such an arrangement permits easy supervision of all parts of the work, and it does away with raising and lowering the baggage into the hold. When tons of material, including many heavy trunks and cases, must be handled, this is an important matter.

BATHING ARRANGEMENTS.

Bathing is not one of the precautions required in fighting yellow fever, but in case the barge is designed for diseases such as cholera, plague, or smallpox, in which case bathing of steerage passengers is frequently required, it will be necessary to furnish the barge with baths and dressing rooms.

Even for yellow fever it is sometimes required to disinfect the body clothing, so that robing and disrobing rooms are necessary parts of a disinfection barge.

The baths and dressing rooms are best placed on the upper deck. They are there well out of the way of the heavy work, and rooms and baths thus located may be sunny and cheerful, which is not possible in the hold.

The same general principles apply to the arrangement of the baths and dressing rooms that apply to the disinfecting deck. By putting the baths themselves amidships, the separation into a receiving or infected end and a discharging or disinfected end is easily arranged.

Passengers may leave their baggage for disinfection on the main deck, then ascend to the upper deck into the disrobing room, leaving their body clothing on passing into the baths. After the bath they go forward to the robing room, where they put on a disinfected suit, and then down again to the main deck, where all their belongings are assembled on the forward clean end. A glance at the plans Nos. 3, 4, 5, and 6 will show how readily this arrangement can be carried out.

The baths should be rain or shower baths. The floor may be a removable grating. The general construction must be on modern sanitary principles to insure cleanliness. In this respect nickeled fittings and tiled or enameled surfaces are apparent luxuries, but are best suited to accomplish the end in view.

A tub bath should always be provided, for there are occasional cases that need a prolonged hot soap and water immersion. Children and the feeble can not take a shower bath.

On a barge the baths may be conveniently divided into a starboard and port set, with separate dressing rooms for each. This arrangement has many advantages in addition to separating the sexes. For instance, the starboard set may be used for officers while the port set is being used by the crew, or, similarly, for cabin and steerage passengers, white and black, etc.

ARRANGEMENTS FOR DISINFECTING VESSELS.

The principal apparatus for disinfecting vessels, per se, consists of the sulphur furnace and piping, and the bichloride tanks, pumps, and hose.

The sulphur furnace is rather large and clumsy for the small confines of a boat, and that is a temptation to the barge designer to stow it away in the hold.

The sulphur furnace and piping always leak, and if it is forward the irritating fumes are a great nuisance to those on board. It can not well be placed aft, because the ordinary type of fan supplied with such furnaces will not pump sulphur dioxide against the wind—remembering that a barge will swing head to the wind when the tide is not strong.

On the simpler types of barges, such as the *Wm. McKinley* (see plate No. 7), the sulphur furnace is undoubtedly best placed and most out of the way well forward on the main deck. In this type of barge little leaks are not so noticeable, because the deck is not housed in. As the sulphur furnace generates much heat during its operation, it, as well as the piping, should be kept out of the hold.

In the large and more elaborate barges, such as the *Sanator*, the *Protector* (see plate No. 2), and the proposed new barge for Habana (see plates 3, 4, 5, and 6), the sulphur furnace is placed well forward in a separate compartment in the hold.

The boiler and pump and the little engine that runs the sulphur fan, etc., should be grouped together, so that one engineer may conveniently attend to all this class of machinery.

In large barges, such as the new one proposed for Habana (see plates 3, 4, 5, and 6), it is necessary, on account of their weight and size, to put the boilers in the hold. In this case it will be noticed that the bichloride and force pumps, the condenser, dynamo, etc., are all conveniently grouped near by for supervision by one man.

In smaller barges, such as the *Rough Rider* and *Wm. McKinley* (plates Nos. 7 and A, B, and C), the little vertical boilers may best be placed right on deck, as shown in the drawings.

As a general rule, it is well to provide a complete double set of all machinery. This insures against a breakdown—and disinfecting machinery seems peculiarly liable to accidents. While on this subject it is well to call attention to the fact that firemen, oilers, and "engineers" without licenses should not be placed in charge of disinfecting machinery. Such machinery seems simple in comparison to a quadruple-expansion marine engine, but sooner or later the want of skill shows itself in breaks and accidents and deterioriation of plant, so that in the end the employment of a cheap man is poor economy.

EQUIPMENT.

Water.—Disinfecting barges use much water. Steam disinfection is a very wasteful process as far as water is concerned. Only the more elaborately equipped and roomy barges can have an evaporator and condenser. Disinfecting barges are not, as a rule, anchored within the reach of the municipal water faucet, and carrying water a long distance is expensive.

Arrangements should therefore be made to catch rain water from the upper deck, and when the disinfecting barge is to be anchored far from an available water supply it is best to furnish her with an evaporator and condenser.

Lights.—In addition to the necessary riding and side lights required by the navigation laws, a disinfecting barge should be well lighted, because the work, even when carefully planned, frequently runs into the night. At a busy station it is very often necessary to work at night. The ordinary lamps and lanterns will suffice, though, of course, electric light is to be preferred.

Ventilation.—Ventilation must be provided for. In the simpler form of barges, such as the *Rough Rider* and the *Wm. McKinley*, hatches in the upper deck and wind sails will answer, but in the larger and more elaborate boats, such as the *Protector*, the *Sanator*, and the proposed barge for Habana (plans Nos. 3, 4, 5, and 6) a system of forced ventilation is very necessary. This is best provided for with the centrifugal blower and piping. In case there is a dynamo or storage battery on board, electric fans will add much to the comfort of those compelled to live and work on the boat, not so much by supplying fresh air as by keeping the air in motion.

Boilers.—Boilers may be of any of the recognized types. The boilers usually furnished with steam disinfecting cylinders are too small. They must have ample steaming capacity to furnish a 1½-inch stream to run the ejector connected with the vacuum apparatus and at the same time have enough steam to keep the jacket of the steam cylinder warm in order to prevent cooling and condensation in the cylinder.

The injector should be larger than that usually furnished, because the cylinders use steam very fast, and with the small-size injectors the water is soon below the gauges of the boiler.

Scotch boilers are preferred for the larger boats. The ordinary vertical boiler answers well enough for the smaller ones. Rapid steaming boilers of the water-tube type are not necessary.

Disinfecting chambers.—Disinfecting chambers for a barge should be strong and double jacketed, preferably of the Kinyoun-Francis pattern. These chambers may be used for disinfection with live steam, with dry heat, with formaldehyd gas, or various combinations of the three.

On barges on which the disinfection of large amounts of baggage and bedding is contemplated the chambers should be rectangular in order to increase their useful capacity and to save space. The cylindrical chambers are cheaper and stronger than the rectangular ones, and are well suited for the smaller types of barges. Whatever the barge, she should have two disinfecting chambers.

Frame baskets.—Frame baskets for holding the clothing that is to be disinfected were formerly made too large. They should be of two sizes—one not more than 4 inches deep, the other 8 or 10 inches deep. The smaller baskets insure more perfect penetration of the disinfecting agent and increase the useful capacity of the chambers. This latter is an important consideration, for in careful disinfection of large amounts of baggage much time is lost waiting for room.

Tanks.—The tanks find a natural habitat in the hold. They should all be provided with a float and telltale, which slide in guides, having the capacity of the tank marked at proper intervals. This arrangement is much more convenient than pet cocks and gauges to read the amount of fluid in the tank at any given time, or in measuring the quantity of water for making bichloride solutions.

The bichloride tank should be of wood. The number and size of the fresh-water tanks should only be limited by the available space.

Baths.—As already stated, the baths should be rain baths, though one or two tubs are necessary. It is essential to furnish the baths with both hot and cold water; whether fresh or salt water is to be used will depend entirely upon the harbor and other circumstances, though the baths should be doubly connected to use either. A Gegenstrom regulator with thermometer should be placed outside the bathrooms in order that an attendant may regulate the temperature of the water.

Bichloride pump.—The bichloride pump must be of iron or other material not readily corroded by the solution. Even then great care must be exercised to prevent it corroding. It should be well washed out, preferably by taking it apart after using. A perfect bichloride pump is a desideratum.

Formaldehyd regenerators are a part of the equipment of a disinfecting barge. They should be of the portable type, and they will be found especially useful in disinfecting cabins, the chart room, salon, sick bay, purser's office, the surgery, etc., as well as disinfecting the barge itself, which must be frequently done.

Overalls and jumpers.—Overalls and jumpers—or, in hot countries, suits of pajamas—form a part of the equipment of the barge. They are used by the crew or passengers of vessels while waiting for their body clothing to be disinfected.

Self-propelling machinery.—Whether the barge is to have self-propelling machinery or not depends entirely upon her duties. As a rule, such machinery is not necessary.

Miscellaneous.—Barges should have ample fenders, derricks, steam hoist, and tender.

MANAGEMENT.

The general management and discipline of a disinfecting barge is very similar to that of a quarantine station, and the rules as laid down by P. A. Surg. H. D. Geddings in the Précis of Practice of Quarantine Stations, published by this Service, apply to such boats.

The importance of a good engineer has already been mentioned. On a busy barge, especially one of the larger types, a ship's carpenter is equally necessary. Barges anchored in a harbor do not, as a rule, need a licensed captain, but a capable sailor to attend to the lights and other duties strictly maritime. The quartermaster or boatswain of a deep-sea vessel makes a very good man for this duty.

It is my experience that where attention is not paid to the subject a barge at a busy port will soon become littered with many things—stores, forgotten or misdirected baggage, personal effects, discarded and unserviceable property, etc. Special pains must therefore be taken in administration to enforce the rule, "A place for everything and everything in its place."

Bells should be struck regularly after the fashion of ship's time, and it will be found advisable to have regular hours for routine work and meals. If possible, the crew should be immune. In the case of yellow fever it is usually practicable to employ those who have had the disease. All on board should be vaccinated against smallpox. In case of working against cholera or plague, they may be immunized with Haffkine's prophylactic or Yersin serum.

Should any of the personnel of the barge fall sick with fever, such person should not be kept on board; in other words, the barge must be kept free from the possibility of being a focus for spreading contagium. During active work the barge must be disinfected frequently as a matter of routine, and the parts exposed to possible contagium must always be disinfected after treating a vessel, persons, or things, even though they are only "suspects." It may be laid down as a practical working rule that anything that requires disinfection should be considered infected and capable of spreading disease.

Whether the barge itself should be quarantined will depend altogether on circumstances, which must be decided for each individual case. The same rules apply here that apply to a quarantine station.

Cleanliness is all important, and can be accomplished only by the exercise of great care and frequent inspections. All paint work should be renewed at least twice a year.

Attendants should wear uniforms, preferably white, and there should be a double set—one for the infected and receiving end and the other for the disinfected or discharging end.

A barge receives many articles of value—silks, broadcloths, fine linens, etc.—to be disinfected. Such articles, and in fact all clothing, should be unpacked and handled with clean hands, placed in clean trays, and carefully protected from rust stains and drip. Soiled decks and rails, and rusted baskets, dirty hands and the like are responsible for most of the complaints that arise concerning disinfection.

A barge used to disinfect vessels and baggage should not be used as a quarters barge—that is, for detaining passengers or crew in quarantine—for reasons that seem self-evident.

In working with diseases that are not air borne, two vessels may lie alongside the barge at the same time. This may save much time when many vessels are awaiting their turn for disinfection.

STATISTICS OF THE UNITED STATES MARINE-HOSPITAL SERVICE.

STATISTICS OF THE UNITED STATES MARINE-HOSPITAL SERVICE.

The following statistical tables are self-explanatory:

TABLE I.—COMPARATIVE TABLE OF NUMBER TREATED—1868 TO 1900.

The following tabular statement will serve to illustrate its growth since the reorganization of the Marine-Hospital Service in 1871:

Operations of the Marine-Hospital Service from July 1, 1868, to June 30, 1900.

Fiscal years.	Number of places at which relief was furnished.	Number of sick and disabled seamen furnished relief.
Prior to reorganization:		
1868	64	11,535
1869	64	11,356
1870	74	10,560
After reorganization:		
1871	72	14,256
1872	81	13,156
1873	91	13,529
1874	91	14,356
1875	94	15,009
1876	94	16,808
1877	100	15,175
1878	210	18,223
1879	210	20,922
1880	210	24,860
1881		32,613
1882		36,184
1883		40,195
1884		44,761
1885		41,714
1886		43,822
1887		45,314
1888		48,203
1889		49,518
1890		50,671
1891		52,992
1892		53,610
1893		53,317
1894		52,803
1895		52,643
1896		53,804
1897		54,477
1898		52,709
1899		55,489
1900		56,355

TABLE II.—EXHIBIT OF OPERATIONS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1900.

Ports.	Total number of seamen treated.	Patients in hospital July 1, 1899.	Admitted during the year.	Total treated in hospital.	Discharged.	Died.	Remaining in hospital June 30, 1900.	Number of days' relief in hospital.	Number of persons furnished office relief.	Number of times relief was furnished.	Number of persons examined physically including pilots.	Amount expended.	Tonnage tax collected.
Total	**56,355**	**762**	**12,142**	**12,904**	**11,691**	**443**	**770**	**313,629**	**43,451**	**66,699**	**4,896**	[a] **$787,287.23**	**$880,482.32**
Albany, N. Y	2	....	2	2	2	....	....	58	....	....	....	158.00	....
Alexandria, Va	22	....	22	22	21	....	1	....	....	....	....	....	32.40
Apalachicola, Fla	34	....	....	....	....	....	....	370	34	58	....	916.14	2,982.75
Ashland, Wis	171	1	36	37	33	1	3	536	134	149	....	708.70	....
Ashtabula, Ohio	226	1	31	32	30	1	1	396	194	414	....	649.12	....
Astoria, Oreg	73	2	23	25	21	....	4	470	48	72	50	1,021.43	10,394.26
Baltimore, Md	2,542	31	482	513	450	19	44	16,458	2,029	3,001	409	21,701.82	64,581.57
Bangor, Me	105	2	27	29	27	....	2	366	76	107	20	868.57	838.81
Barnstable, Mass., and subports	142	....	....	....	....	....	....	....	142	204	....	305.00	157.80
Bath, Me	35	....	....	....	....	....	....	....	35	135	1	308.63	41.52
Beaufort, N. C	136	....	17	17	17	....	....	258	119	166	67	781.06	5.31
Beaufort, S. C	19	....	....	....	....	....	....	....	19	32	....	107.89	1,820.04
Belfast, Me	....	....	....	....	....	....	....	....	....	....	....	....	108.27
Bismarck, N. Dak	5	....	2	2	2	....	....	29	3	5	....	226.10	....
Boston, Mass	3,307	50	756	806	738	19	49	23,943	2,501	4,401	257	27,326.28	56,235.72
Brashear, La	....	....	....	....	....	....	....	....	....	....	....	....	....
Bridgeport, Conn	12	....	11	11	9	1	1	426	1	1	....	387.75	258.21
Bridgeton, N. J	....	....	....	....	....	....	....	....	....	....	....	....	148.08
Bristol, R. I	....	....	....	....	....	....	....	....	....	....	....	....	8.94
Brownsville, Tex	1	1	....	1	1	....	....	....	....	....	....	....	....
Brunswick, Ga	226	2	45	47	42	2	3	865	179	216	....	1,379.30	11,333.91
Buffalo, N. Y	2,802	8	243	251	224	5	22	3,074	2,551	3,182	57	8,199.61	....
Burlington, Iowa	21	....	21	21	20	1	....	303	....	....	....	208.20	....
Burlington, Vt	....	....	....	....	....	....	....	....	....	....	....	....	354.36
Boothbay Harbor, Me	86	....	2	2	2	....	....	27	84	91	1	365.09	....
Cairo, Ill	663	5	283	288	272	8	8	4,353	375	449	2	8,246.79	....
Cambridge, Md	46	....	20	20	20	....	....	167	26	35	....	405.41	....
Cape Vincent, N. Y	....	....	....	....	....	....	....	....	....	....	....	....	181.07
Castine, Me	2	....	....	....	....	....	....	....	2	9	....	49.00	107.70
Cedar Keys, Fla	133	....	....	....	....	....	....	....	133	171	....	177.00	....
Charleston, S. C	784	9	97	106	102	2	2	1,631	678	920	54	6,431.16	5,367.54
Chattanooga, Tenn	25	....	1	1	1	....	....	5	24	80	....	309.54	....
Chicago, Ill	2,440	32	489	521	473	15	33	12,600	1,919	2,793	82	22,573.95	....
Cincinnati, Ohio	863	23	247	270	244	12	14	7,051	593	777	12	12,284.93	....
Cleveland, Ohio	2,106	30	437	467	428	10	29	11,086	1,639	2,521	16	13,942.29	213.30
Coos Bay	....	....	....	....	....	....	....	....	....	....	....	....	....
Corpus Christi, Tex	14	1	3	4	4	....	....	78	10	21	19	418.95	....
Crisfield, Md	130	....	....	....	....	....	....	....	130	175	....	324.17	....
Darien, Ga	40	....	....	....	....	....	....	....	40	45	....	239.25	....
Delaware Breakwater, Del	262	1	56	57	55	....	2	845	205	264	28	7,999.85	....

Detroit, Mich	1,256	19	305	324	302	10	12	7,463	932	1,471	67	14,742.05	34.20
Dubuque, Iowa	43	4	26	30	27	1	2	324	13	14	9	578.72	
Duluth, Minn	444	2	74	76	68	2	6	1,186	368	447	36	1,283.72	46.20
Dutch Harbor, Alaska												642.29	
Eastport, Me	17		1	1	1			7	16	46		94.00	1,033.44
Edenton, N. C	154		10	10	9	1		70	144	190		395.00	
Edgartown, Mass	8								8	11		26.65	244.08
Elizabeth City, N. C	48								48	59	155	250.00	
Ellsworth, Me	15		1	1	1			14	14	54	13	283.10	124.71
Erie, Pa	141	3	25	28	23	4	1	457	113	149		863.52	.36
Escanaba, Mich	117	1	19	20	20			372	97	97		676.34	
Eureka, Cal	46		14	14	14			171	32	43	20	567.51	370.23
Evansville, Ind	1,426	10	205	215	203	5	7	4,603	1,211	1,560	10	9,432.97	
Fall River, Mass													17.64
Fernandina, Fla	95		32	32	32			561	63	92		920.84	5,115.87
Fredericksburg, Va	72		3	3	3			58	69	141		202.20	
Fort Stanton, N. Mex	65		65	65	12	6	47	6,449				48,134.77	
Gallipolis, Ohio	253		111	111	104	4	3	1,891	142	276	8	2,114.80	
Galveston, Tex	920	16	239	255	236	9	10	4,735	665	983	138	9,903.73	38,824.50
Georgetown, S. C	325	1	72	73	72		1	469	252	478	7	1,167.76	
Gloucester, Mass	358		18	18	15	1	2	657	340	550	23	1,394.99	1,090.14
Government Hospital for the Insane, Washington, D. C	33	28	5	33	2	4	27	9,998				6,469.49	
Grand Haven, Mich	40		10	10	10			180	30	65	90	521.55	
Great Falls, Mont													26.82
Greenbay, Wis	101		9	9	9			177	92	128		573.62	
Hartford, Conn	12		11	11	10		1	207	1	2		216.95	
Honolulu, Hawaii													1,241.22
Jacksonville, Fla	299	1	93	94	92		2	1,297	205	281	24	1,800.34	652.74
Juneau, Alaska	47	1	25	26	25	1		321	21	119		1,476.20	
Key West, Fla	1,103	7	102	109	86	11	12	3,279	994	1,623	19	10,148.10	2,051.72
La Crosse, Wis	144		20	20	19		1	161	124	229	6	753.63	
Little Rock, Ark	18	1	2	3				47	15	26		287.00	
Los Angeles, Cal												984.37	1,363.86
Louisville, Ky	512	16	193	209	198	5	6	4,215	303	490	18	8,001.69	
Ludington, Mich	33		10	10	10			277	23	44		419.51	
Machias, Me	76	2	17	19	18		1	419	57	80		722.15	253.53
Manistee, Mich	94	1	19	20	19		1	361	74	99		588.90	
Marblehead, Mass													13.29
Marquette, Mich	90	1	15	16	16			237	74	97		532.55	
Marshfield, Oreg	91	2	20	22	21		1	305	69	165	30	775.71	
Memphis, Tenn	2,094	16	573	589	553	20	16	6,102	1,505	1,803	24	11,754.47	
Milwaukee, Wis	635	5	96	101	91	5	5	2,212	534	730	93	3,255.15	
Mobile, Ala	1,003	15	293	308	281	14	13	8,545	695	821	60	15,325.95	18,957.28
Nashville, Tenn	44		5	5	4	1		53	39	103		385.90	
Natchez, Miss	12		1	1	1			15	11	12		493.44	
Newark, N. J													501.54
New Bedford, Mass	45								45	77		230.59	157.71
Newbern, N. C	340	6	36	42	41	1		450	298	605		1,075.44	4.14
Newburyport, Mass													

[a] Miscellaneous, $6,963.77.

TABLE II.—EXHIBIT OF OPERATIONS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1900—Continued.

Ports.	Total number of seamen treated.	Patients in hospital July 1, 1899.	Admitted during the year.	Total treated in hospital.	Discharged.	Died.	Remaining in hospital June 30, 1900.	Number of days' relief in hospital.	Number of persons furnished office relief.	Number of times relief was furnished.	Number of persons examined physically including pilots.	Amount expended.	Tonnage tax collected.
New Haven, Conn	56	2	34	36	33	2	1	613	20	25	68	$1,069.00	$169.02
New London, Conn	103		20	20	20			363	83	84		1,022.70	18.42
New Orleans, La	2,522	28	465	493	440	21	32	12,433	2,029	2,451	96	22,187.88	79,100.46
Newport, Ark	170		21	21	21			208	149	276		740.07	
Newport, R. I	51		29	29	25	1	3	821	22	25	57	1,016.15	19.14
Newport, Vt													58.11
Newport News, Va	60		2	2	2			47	58	60		336.80	20,040.48
New York, N. Y	5,402	108	1,072	1,180	1,024	63	93	37,489	4,222	6,502	831	62,863.88	299,774.68
Norfolk, Va	1,866	23	413	436	401	16	19	6,947	1,430	2,253	141	10,671.05	10,184.52
Ogdensburg, N. Y	56		9	9	9			205	47	114		530.60	1,133.04
Omaha, Nebr												17.10	
Oswego, N. Y	51	2	8	10	10			227	41	69		688.18	703.20
Paducah, Ky	20								20	46		17.10	
Pensacola, Fla	137	5	122	127	120	1	6	2,124	10	31		3,076.88	27,328.17
Perth Amboy, N. Y													363.18
Petersburg, Va													
Philadelphia, Pa	1,363	19	354	373	345	8	20	8,092	990	1,450	350	17,052.57	75,681.98
Pittsburg, Pa	1,423	13	196	209	191	10	8	4,700	1,214	1,649	17	6,598.03	
Plattsburg, N. Y													3,284.28
Plymouth, Mass													13.74
Port Huron, Mich	205		12	12	11		1	178	193	305	44	527.20	
Portland, Me	686	18	165	183	157	7	19	7,154	503	579	110	11,772.69	17,339.61
Portland, Oreg	443	3	81	84	76	3	5	1,681	349	645	10	3,743.86	
Portsmouth, N. H	40		9	9	8	1		133	31	33		335.00	291.24
Port Tampa, Fla	141	1	89	90	84	3	3	1,110	51	135		1,694.45	
Port Townsend, Wash	231	18	28	46	7	10	29	11,141	185	294	3	14,737.64	22,615.44
Providence, R. I	428	2	41	43	38	4	1	1,047	385	1,093	5	2,625.01	211.65
Purveying division												177,509.32	
Richmond, Va	52		18	18	18			253	34	52		557.05	
Rochester, N. Y													280.74
Rockland, Me	184								184	462	18	576.12	
Rome, Ga													
Sag Harbor, N. Y	14								14	14		31.95	67.86
Saginaw, Mich	152		29	29	28	1		402	123	224	7	596.58	
St. Augustine, Fla													
St. Louis, Mo	1,926	43	508	551	501	21	29	12,000	1,375	2,145	45	16,157.48	
St. Marys, Ga													34.83
St. Paul, Minn	31	1	14	15	12	2	1	491	16	26		795.70	
Salem, Mass	28		4	4	4			179	24	24		294.50	224.07
San Diego, Cal	66		15	15	14		1	160	71	137	7	3,224.53	3,132.27
Sandusky, Ohio	73		18	18	18			164	55	86	16	373.71	
San Francisco, Cal	2,630	59	749	808	720	31	57	24,084	1,822	3,904	819	31,960.99	47,050.05

San Pedro, Cal	162	10	97	107	104	....	3	2,749	55	97	....	2,194.60	....
Sault Ste. Marie, Mich	275	9	108	117	113	....	4	1,727	158	179	2	2,103.30	....
Savannah, Ga	874	6	269	275	258	7	10	4,502	599	701	36	7,527.11	14,251.26
Seattle, Wash	1,446	4	110	114	103	9	2	2,313	1,332	2,067	165	5,705.88	....
Shieldsboro, Miss	....	....	....	....	....	....	....	....	....	....	....	....	8,487.00
Shreveport, La	202	....	25	25	25	....	....	538	177	1,241	....	1,199.77	....
Sitka, Alaska	3	....	3	3	3	....	....	19	....	....	....	57.00	3,232.64
Solomons, Md	338	....	25	25	25	....	....	285	313	366	....	711.59	....
Stonnington, Conn	....	....	....	....	....	....	....	....	....	....	....	....	22.02
Sturgeon Bay, Wis	55	....	2	2	2	....	....	33	53	57	33	376.98	....
Superior, Wis	179	1	22	23	20	....	3	365	156	237	....	716.71	....
Tacoma, Wash	132	1	30	31	30	1	....	429	101	126	....	641.35	....
Tampa, Fla	....	....	....	....	....	....	....	....	....	....	....	....	5,319.11
Tappahannock, Va	421	....	100	100	98	1	1	1,037	321	350	....	1,859.80	10.50
Toledo, Ohio	341	3	130	133	128	1	4	2,128	208	619	6	1,909.30	16.23
Vicksburg, Miss	47	2	44	46	44	2	....	529	1	10	....	689.00	....
Vineyard Haven, Mass	251	10	76	86	80	3	3	3,587	165	170	11	11,430.74	....
Washington, D. C	155	2	40	42	40	....	2	624	113	144	19	31,291.30	220.14
Washington, D. C. (laboratory)	....	....	....	....	....	....	....	....	....	....	....	8,175.11	....
Waldoboro, Me	....	....	....	....	....	....	....	....	....	....	....	....	597.48
Wheeling, W. Va	38	....	13	13	13	....	....	189	25	45	....	477.00	....
Wilmington, Del	....	....	....	....	....	....	....	....	....	....	....	....	8,433.36
Wilmington, N. C	303	11	80	91	76	5	10	3,538	212	236	44	8,366.50	3,094.71
Wiscasset, Me	....	....	....	....	....	....	....	....	....	....	....	....	380.91
Cape Charles Quarantine	....	....	....	....	....	....	....	....	1	1	....	(*a*)	....
Cape Fear Quarantine	....	....	....	....	....	....	....	....	....	....	11	(*a*)	....
Delaware Breakwater Quarantine	6	....	4	4	4	....	....	21	2	7	....	(*a*)	....
Gulf Quarantine	31	1	11	12	10	2	....	195	19	33	....	(*a*)	....
Port Townsend Quarantine	23	....	23	23	20	3	....	426	....	....	....	(*a*)	....
Reedy Island Quarantine	3	....	3	3	3	....	....	19	....	....	....	(*a*)	....
San Francisco Quarantine	11	....	11	11	6	2	3	125	....	....	....	(*a*)	....
Savannah Quarantine	21	....	....	....	....	....	....	....	21	55	....	(*a*)	....
South Atlantic Quarantine	6	....	6	6	5	1	....	42	....	....	....	(*a*)	....
Tortugas Quarantine	13	....	3	3	3	....	....	23	10	11	....	(*a*)	....

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a Expenditures for quarantine stations appear elsewhere in financial statement.

TABLE III.—SUMMARY OF PHYSICAL EXAMINATIONS OF SEAMEN MADE BY OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE, YEAR ENDED JUNE 30, 1900.

Summary of examinations and causes of rejections.	Total.	Pilots.	Revenue-Cutter Service.	Life-Saving Service.	Coast-Survey Service.	Marine-Hospital Service.	Light-House Service.	Naval Reserve.
Summary of examinations:								
Total number examined	4,896	2,437	977	1,467	3	6	6	0
Number passed	4,620	2,338	879	1,392	1	5	5	0
Number rejected	276	99	98	75	2	1	1	0
Causes of rejection:								
Albumenuria	1	....	1	....	....	....	....	....
Aneurysm	2	1	....	1	....	....	....	....
Boils	1	....	....	1	....	....	....	....
Brights' disease	2	2	....	....	....	....	....	....
Bronchitis	2	....	1	1	....	....	....	....
Caries, teeth	1	....	1	....	....	....	....	....
Catarrh, nasal	1	....	....	1	....	....	....	....
Chancre, soft	2	1	1	....	....	....	....	....
Club foot	1	....	1	....	....	....	....	....
Colic	1	1	....	....	....	....	....	....
Color blindness	69	43	16	10	....	....	....	....
Colitis	2	2	....	....	....	....	....	....
Curvature spine	4	....	4	....	....	....	....	....
Deafness	9	....	1	8	....	....	....	....
Defective vision	31	19	6	6	....	....	....	....
Disease of heart—								
Aortic	4	....	2	2	....	....	....	....
Enlarged	1	....	....	1	....	....	....	....
Irregular action	8	1	3	4	....	....	....	....
Mitral	14	1	10	3	....	....	....	....
Ectropion	1	1	....	....	....	....	....	....
Eneurosis	1	1	....	....	....	....	....	....
Enlarged tonsils	4	....	3	1	....	....	....	....
Epididymitis	4	2	1	1	....	....	....	....
Flat foot	1	....	1	....	....	....	....	....
Goiter	2	....	....	2	....	....	....	....
Gonorrhea	5	3	2	....	....	....	....	....
Granular lids	1	....	1	....	....	....	....	....
Hay fever	2	....	....	2	....	....	....	....
Hemorrhoids	1	....	1	....	....	....	....	....
Hernia	14	2	7	4	1	....	....	....
Hydrocele	1	....	1	....	....	....	....	....
Inflammation intestines	1	1	....	....	....	....	....	....
Inflammation stomach	1	1	....	....	....	....	....	....
Influenza	1	....	1	....	....	....	....	....
Insufficient chest expansion	10	1	5	3	....	1	....	....
Insufficient stature	3	....	2	1	....	....	....	....
Paralysis	1	....	1	....	....	....	....	....
Pleurisy	2	2	....	....	....	....	....	....
Poor physical condition	7	3	2	2	....	....	....	....
Poor physical development	13	3	4	4	1	....	1	....
Rheumatism	3	2	1	....	....	....	....	....
Roughened breathing	5	....	2	3	....	....	....	....
Sciatica	1	1	....	....	....	....	....	....
Sprain ankle	1	1	....	....	....	....	....	....
Syphilis	9	2	5	2	....	....	....	....
Thickened pleura	1	....	1	....	....	....	....	....
Tubercele lungs	2	....	1	1	....	....	....	....
Urethritis	1	....	1	....	....	....	....	....
Urethral stricture	2	1	....	1	....	....	....	....
Varicocele	12	....	6	6	....	....	....	....
Varicose veins	4	....	3	1	....	....	....	....
Weak lungs	2	....	2	....	....	....	....	....
Wound of hand	....	....	....	....	....	....	....	....
Wound of scalp	1	1	....	....	....	....	....	....

TABLE IV.—STATEMENT, BY DISTRICTS, OF THE NUMBER OF PATIENTS TREATED DURING THE YEAR ENDED JUNE 30, 1900.

Districts.	Total cases.	Patients in hospital July 1, 1899.	Admitted during the year.	Total number treated in hospital.	Discharged.	Died.	Patients in hospital June 30, 1900.	Number of days hospital relief furnished.	Number of seamen furnished office relief.
Grand total	**56,355**	**762**	**12,142**	**12,904**	**11,691**	**443**	**770**	**313,629**	**43,451**
North Atlantic	5,864	84	1,146	1,230	1,114	36	80	38,354	4,634
Middle Atlantic	7,226	130	1,560	1,690	1,499	74	117	48,093	5,536
South Atlantic	9,358	120	1,859	1,979	1,799	58	122	49,515	7,379
The Gulf	6,232	74	1,360	1,434	1,298	59	77	33,212	4,798
The Ohio	4,604	62	971	1,033	958	37	38	22,707	3,571
The Mississippi	5,174	72	1,515	1,587	1,475	55	57	24,562	3,587
The Great Lakes	12,083	119	2,156	2,275	2,093	55	127	46,043	9,808
The Pacific	5,699	100	1,514	1,614	1,404	61	149	50,292	4,085
The quarantine stations	115	1	61	62	51	8	3	851	53

TABLE V.—RATIO OF PATIENTS TREATED IN HOSPITAL IN EACH DISTRICT.

Districts.	Percent of total number of patients.	Districts.	Percent of total number of patients.
North Atlantic	20.80	The Mississippi	30.67
Middle Atlantic	23.38	The Great Lakes	18.82
South Atlantic	21.15	The Pacific	28.32
The Gulf	22.53	The quarantine stations	53.90
The Ohio	22.43		

TABLE VI.—AVERAGE DURATION OF TREATMENT IN HOSPITAL IN EACH DISTRICT.

Districts.	Average number of days' relief furnished to each patient.	Districts.	Average number of days' relief furnished to each patient.
North Atlantic	31.18	The Mississippi	15.47
Middle Atlantic	28.45	The Great Lakes	20.24
South Atlantic	25.02	The Pacific	31.15
The Gulf	23.15	The quarantine stations	13.72
The Ohio	21.98		

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
Total of all cases	**762**	**12,142**	**7,529**	**3,847**	**315**	**443**	**770**	**43,451**	**56,355**
GENERAL DISEASES	316	5,305	3,280	1,699	132	195	315	19,062	24,683
LOCAL DISEASES	338	4,838	2,856	1,596	156	220	348	19,933	25,109
GENERAL INJURIES	6	118	78	32	1	10	3	173	297
LOCAL INJURIES	102	1,881	1,315	520	26	18	104	4,283	6,266

NORTH ATLANTIC.

Diseases.	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
TOTAL CASES	**84**	**1,146**	**674**	**401**	**39**	**36**	**80**	**4,634**	**5,864**
General Diseases	**28**	**486**	**256**	**196**	**17**	**12**	**33**	**1,914**	**2,428**
Smallpox	1		1						1
Measles	1	14	14	1				4	19
Rubella		1	1						1
Scarlet fever		2	2						2
Influenza		29	26	3				170	199
Mumps	1		1					4	5
Simple continued fever		1					1	3	4
Enteric fever		37	28	4		3	2	4	41
Choleraic diarrhea								1	1
Dysentery	3	1	2	2				6	10
Beriberi		2		1		1		1	3
Malarial fever:									
Intermittent		71	61	4	3		3	97	168
Remittent		8	7	1				19	27
Erysipelas		5	4				1	2	7
Septicæmia		2	2						2
Tubercle	5	37	1	20	7	7	7	36	78
Syphilis:									
Primary		3		1	1		1	35	38
Secondary	8	94	1	96	1		4	425	523
Gonorrhea	3	73	40	27	3		6	609	685
Diseases dependent on animal parasites:									
Tænia solium								2	2
Ascaris lumbricoides								1	1
Sarcoptes scabiei		1	1					18	19
Tinea versicolor								2	2
Tinea circinnati								2	2
Diseases dependent on vegetable parasites:									
Achorion Schönleinii		1		1					1
Trichophyton tonsurans								3	3
Microsporon furfur								3	3
Effects of vegetable poisons:									
Tobacco								1	1
Rhus								1	1
Copaiba								1	1
Effects of inorganic poisons, lead	1		1						1
Effects of the presence of foreign bodies								1	1
Effects of mechanical injuries								1	1
Effects of heat		2		2					2
Alcoholism		9	7	2				23	32
Rheumatic fever	2	9	7	4				8	19
Rheumatism	2	70	41	23			8	337	409
Cyst:									
Sebaceous		1	1					1	2
Ranula		1	1						1
Serous		1	1						1
New growth, nonmalignant:									
Fibroma	1		1						1
Osteoma		1		1				1	2
Pterygium		1	1					2	3
Hæmangioma								1	1
Papilloma		1	1					10	11

Table VII.—Tabular Statement, by Districts, of Diseases and Injuries Treated during the Year ended June 30, 1900—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
New growth, malignant:									
Carcinoma		1			1			4	5
Squamous carcinoma		1			1			2	3
Anæmia								5	5
Hodgkin's disease		1				1		1	2
Diabetes mellitus								13	13
Debility		5	2	3				54	59
Local diseases									
DISEASES OF THE NERVOUS SYSTEM	13	22	4	17	5	1	8	85	120
Of the nerves—									
Inflammation—									
Neuritis		1		1				13	14
Multiple neuritis		1		1					1
Of the spinal cord and membranes—									
Cord—									
Degeneration—									
Of lateral columns	2		1				1	1	3
Of posterior columns	2	1			1		2		3
Hemorrhage	1						1		1
Of the brain and its membranes—									
Brain—									
Hyperæmia		1		1				1	2
Functional nervous disorders with other diseases of undetermined nature—									
Apoplexy		1					1		1
Paralysis—									
Paraplegia		1				1			1
Hemiplegia	4	2		3			3	3	9
Monoplegia	1			1					1
Local paralysis		1	1					2	3
Incomplete paralysis		1		1					1
Epilepsy	1	2		3				4	7
Vertigo								4	4
Headache								2	2
Neuralgia		4	1	3				35	39
Nervous weakness		4		1	3			18	22
Mental diseases—									
Mania	1			1					1
Melancholia		1			1			1	2
Dementia	1		1					1	2
General paralysis of the insane		1		1					1
DISEASES OF THE EYE	1	10	6	3	1		1	55	66
Conjunctivitis								12	12
Conjunctivitis, catarrhal								4	4
Acute	1			1				17	18
Chronic								2	2
Ulceration of cornea								1	1
Optic atrophy		1			1				1
Iritis		7	5	2				9	16
Lenticular cataract		1					1	1	2
Ametropia								5	5
Blepharitis marginalis								1	1
Abscess of eyelid		1	1					1	2
Abscess lachrymal sac								2	2
DISEASES OF THE EAR		3	2	1				21	24
Inflammation of the external meatus—									
Acute								1	1
Abscess								1	1
Accumulation in external meatus of wax or epidermis								10	10

Table VII.—Tabular Statement, by Districts, of Diseases and Injuries Treated during the Year ended June 30, 1900—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
Diseases of the Ear—Continued.									
Inflammation of the middle ear—									
Nonsuppurative		1	1					3	4
Suppurative		2	1	1				5	7
Tinnitus								1	1
Diseases of the Nose	1			1				16	17
Inflammation of soft parts								16	
Inflammation of framework	1			1					
Diseases of septum								5	5
Deviations								1	1
Epistaxis								2	2
Inflammation of the naso-pharynx								1	1
Hypertrophy, naso-pharyngeal								1	1
Diseases of the Circulatory System	5	31	13	13	1	2	7	85	121
Valvular disease—									
Aortic	1	5	4	2				7	13
Mitral	1	7	2	1		1	4	28	36
Aortic and mitral	1	4		1		1	3	6	11
Degeneration of heart, fibrous								1	1
Hypertrophy of heart								2	2
Syncope								1	1
Disordered action of the heart—irregularity		1		1				8	9
Aneurysm of arteries		1	1					3	4
Phlebitis	1	1		2					2
Varix	1	12	6	6	1			29	42
Diseases of the Respiratory System	1	56	34	16		7		335	392
Inflammation of mucous membrane of larynx (Catarrhal)—									
Acute		4	3	1				14	18
Chronic		1		1				1	2
Bronchitis (Catarrhal)—									
Acute		21	15	6				231	252
Chronic		2	1	1				37	39
Spasmodic asthma								5	5
Hemorrhage of lung								3	3
Hæmoptysis								5	5
Pneumonia		19	12	1		6		4	23
Phthisis—									
Acute								2	2
Chronic								3	3
Tubercular	1					1		3	4
Pleurisy—									
Acute		7	3	4				19	26
Chronic		2		2				8	10
Diseases of the Digestive System	3	114	68	33	8	6	2	611	728
Ulceration of the lips								1	1
Fissures of the lips								1	1
Inflammation of the mouth		1		1				4	5
Ulceration of the mouth								3	3
Suppuration of the dental pulp								5	5
Caries of dentine and cementum								12	12
Inflammation of dental periosteum								1	1
Abscess of dental periosteum		2	1	1				3	5
Suppuration of alveoli		1	1					1	2
Ulceration of gums and alveoli								1	1
Toothache								6	6
Sore throat								4	4
Ulceration of the fauces								1	1

Table VII.—Tabular Statement, by Districts, of Diseases and Injuries Treated during the Year ended June 30, 1900—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE DIGESTIVE SYSTEM—Con.									
Inflammation of tonsils—									
Follicular		9	7	2				68	77
Suppuration		12	11	1				5	17
Hypertrophy of tonsils		1		1					1
Salivation								1	1
Inflammation of the pharynx—									
Catarrhal		1	1					16	17
Granular		1	1					2	3
Follicular		1	1						1
Post-pharyngeal abscess								1	1
Inflammmation of the stomach		2		1	1				2
Cararrhal	1	13	7	5	2			40	54
Ulceration of the stomach		1	1						1
Superficial		1			1			5	6
Perforating		1				1			1
Hemorrhage of the stomach								1	1
Indigestion		7	3	4				188	195
Vomiting								1	1
Gastralgia								1	1
Inflammation of the intestines—									
Enteritis		14	10	1	1	2		2	16
Typhlitis		4	2	1		1		5	9
Colitis								3	3
Catarrhal		1	1					15	16
Hernia	1	9	3	3	3	1		69	79
Intestinal dyspepsia								2	2
Constipation								23	23
Colic		1	1					2	3
Diarrhea		6	5				1	59	65
Fissure of the anus								1	1
Fistula in ano		4	3	1				8	12
Piles—									
Internal		8	2	5			1	4	12
External		8	6	2				22	30
Mixed								1	1
Inflammation of the liver—									
Acute								2	2
Chronic		2		2					2
Hyperæmia of the liver	1			1				4	5
Hypertrophy of the liver								10	10
Jaundice		1	1					5	6
Inflammation of hepatic ducts and gall bladder		1		1				1	2
Inflammation pancreas		1				1			1
Adhesions peritoneum								1	1
DISEASES OF THE LYMPHATIC SYSTEM	6	36	31	9	1		1	45	87
Splenitis		1		1					1
Inflammation of lymph glands	6	4	8	2				23	33
Suppuration		28	20	6	1		1	21	49
Inflammation of lymphatics		3	3					1	4
DISEASES OF THE URINARY SYSTEM	3	16	4	7	2	5	1	73	92
Acute nephritis		1		1				2	3
Bright's disease	2	1		1		2		5	8
Chronic nephritis		5		2	1	2		3	8
Calculus in kidney		1	1					4	5
Calcalus in ureter								1	1
Albuminuria								2	2
Phosphaturia		1		1				1	2
Inflammation of bladder—									
Acute		3	2		1			26	29
Subacute		1					1	6	7
Chronic	1	1		2				13	15

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE URINARY SYSTEM—Cont'd									
Retention of urine		1	1					1	2
Incontinence of urine		1				1		9	10
DISEASES OF THE GENERATIVE SYSTEM	2	78	46	27	1		6	251	331
Urethritis								2	2
Gleet								4	4
Stricture of urethra—									
Organic	1	12	7	6				53	66
Traumatic		1		1					1
Spasmodic		1	1					2	3
Urethral fistula		2	2					1	3
Prostatorrhœa								1	1
Hypertrophy of the prostate		2	1	1				1	3
Phimosis		2	2					1	3
Paraphimosis								4	4
Inflammation of the glands								5	5
Ulcer of penis		9	5	4				30	39
Soft chancre	1	33	22	9			3	102	136
Hydrocele of the spermatic cord								2	2
Varicocele								9	9
Hydrocele of tunica vaginalis		8	3	2	1		2	15	23
Inflammation of the testicle—									
Acute orchitis		4	2	1			1	9	13
Chronic orchitis		1		1				4	5
Epididymitis		2		2				2	4
Abscess of testicle		1	1						1
Spermatorrhea								1	1
Impotence								3	3
DISEASES OF THE ORGANS OF LOCOMOTION	2	22	7	13	1		3	107	131
Inflammation of the bones—									
Osteitis		1		1				1	2
Periostitis		6	4	2				2	8
Necrosis		4	1	3				2	6
Inflammation of joints—									
Acute synovitis		3	1	1			1	5	8
Chronic synovitis								5	5
Suppuration	1			1					1
Anchylosis								1	1
Dislocation of articular cartilage		1	1						1
Caries of the spine	1	1					2		2
Psoas, lumbar, and other abscesses		1		1				3	4
Suppuration of muscles								3	3
Myalgia		2		1	1			51	53
Lumbago								25	25
Thecal abscess		2		2					2
Ganglion								1	1
Inflammation of bursæ—									
Acute		1		1				5	6
Chronic								1	1
Bursal cyst								1	1
Flat foot								1	1
DISEASES OF THE CONNECTIVE TISSUE	3	25	23	3			2	183	211
Inflammation	2	2	3				1	80	84
Abscess	1	23	20	3			1	102	126
Œdema								1	1
DISEASES OF THE SKIN	2	46	27	17	1		3	292	340
Erythema		1	1					8	9
Urticaria								7	7
Eczema	1	5	2	4				60	66
Impetigo								9	9
Psoriasis		1		1				3	4

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE SKIN—Continued.									
Herpes								8	8
Zona								1	1
Pemphigus		1	1						1
Acne								6	6
Sycosis								4	4
Ichthyosis								1	1
Alopecia								1	1
Ulcer	1	16	10	4			3	43	60
Cicatrices								1	1
Boil		11	7	4				98	109
Carbuncle		2	1	1				5	7
Whitlow		3	1	2				23	26
Onychia		1	1					7	8
Corn		1			1			2	3
Wen		2	1	1				3	5
Pruritus								1	1
Lupus		2	2					1	3
Injuries	**1**	**16**	**12**	**5**				**29**	**46**
GENERAL INJURIES:									
Effects of heat—									
Burns and scalds	1	12	9	4				26	39
Heat stroke		1	1					2	3
Sunstroke		1	1						1
Effects of chemical irritants and corrosives		1	1					1	2
Privation—exhaustion		1		1					1
LOCAL INJURIES	13	185	141	40	1	3	13	527	725
Rupture artery		1				1			1
Wound of gland								1	1
Contusion of muscles								2	2
Strain of muscles								3	3
Abrasion of skin								3	3
Burn or scald of skin								2	2
Frostbite		3	3					16	19
Contusion of scalp		2	1	1				3	5
Wound of scalp		3	3					10	13
With injury to the aponeurosis		2	1				1		2
With injury to the pericranium		2		2					2
Contusion of skull								1	1
Concussion of brain		1	1					2	3
Contusion of face		1	1					2	3
Wound of face and mouth		5	3	2				25	30
Fracture of facial bones		2		2				2	4
Contusion of eyelid								4	4
Wound of eyelid								1	1
Wound of conjunctiva								1	1
Foreign bodies in the conjunctiva or cornea		1	1					9	10
Wound of eyeball		1	1						1
Wound of pinna								2	2
Wound of neck		1	1					1	2
Contusion of chest		6	6					29	35
Dislocation of costal cartilages								2	2
Fracture of ribs	1	10	6	3		1	1	16	27
Fracture of sternum		1		1				2	3
Contusion of back		8	6	2				12	20
Sprain of back		2	2					20	22
Wound of back								2	2
Concussion of cord		3	2	1					3
Compression of spinal cord		3		2			1		3

Table VII.—Tabular Statement, by Districts, of Diseases and Injuries Treated during the Year ended June 30, 1900—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
Local Injuries—Continued.									
Wound of viscera		1	1						1
Contusion of the pelvis		3	2	1				1	4
Wound of the male urethra, perinæum, scrotum, testis or penis		1	1					1	2
Wound of anus								1	1
Foreign body in the rectum		2	2						2
Fracture or dislocation of pelvic bones								1	1
Contusion of testicle		4	3	1				1	5
Contusion of upper extremities		9	6	3				34	43
Sprain of shoulder								9	9
Sprain of elbow								2	2
Sprain of wrist		1		1				19	20
Sprain of thumb								2	2
Sprain of fingers								2	2
Wound of upper extremities		25	21	2			2	151	176
Fracture of clavicle		2	2					3	5
Fracture of humerus		3	1				2	2	5
Fracture of bones of forearm:									
Radius		1	1					2	3
Ulna		1		1				2	3
Both bones	1				1			3	4
Fracture of carpus, metacarpus, or phalanges	1	4	3				2	5	10
Dislocation of metacarpus	1		1						1
Dislocation of clavicle		1	1						1
Dislocation of humerus		2	2					3	5
Dislocation of phalanges of thumb								1	1
Contusion of lower extremities	2	30	23	9				46	78
Sprain of knee								11	11
Sprain of ankle		9	9					22	31
Sprain of foot								1	1
Internal derangement of joints								1	1
Wound of lower extremities	1	7	7				1	25	33
Wound of joint, lower extremities								1	1
Fracture of femur	3	9	8	3			1		12
Fracture of cervix femoris		1	1						1
Fracture of tibia	1	5	4	1			1	1	7
Fracture of fibula		1					1		1
Fracture of tibia and fibula	2	4	3	2		1			6
Dislocation of foot								1	1
Dislocation of metatarsus and phalanges		1	1						1

MIDDLE ATLANTIC.

Diseases.	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
Total Cases	**130**	**1,560**	**965**	**489**	**45**	**74**	**117**	**5,536**	**7,226**
General Diseases	**69**	**645**	**376**	**219**	**22**	**45**	**52**	**2,338**	**3,052**
Cowpox								379	379
Chicken pox								2	2
Measles		5	4	1				3	8
Influenza		25	24	1				52	77
Mumps		4	4					2	6
Diphtheria		3	2	1					3
Enteric fever		50	39			5	6	1	51
Dysentery		9	9					11	20
Malarial fever:									
Intermittent	7	104	91	10	4	3	3	199	310
Remittent		17	10	1		5	1	15	32

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
Erysipelas		7	7					1	8
Tubercle	20	62	2	39	6	25	10	68	150
Syphilis:									
Primary	4	11	15					18	33
Secondary	12	91	9	85	2	1	6	494	597
Gonorrhea	15	122	72	43	8		14	668	805
Diseases dependent on animal parasites:									
Tænia solium		3	3					9	12
Tænia mediocanellata	1		1						1
Ascaris lumbricoides								1	1
Pediculi vestimenti								1	1
Tinea favosa								1	1
Tinea circinata								6	6
Tinea sycosis								2	2
Sarcoptes scabiei								7	7
Diseases dependent on vegetable parasites:									
Trichophyton tonsurans		2		2				10	12
Microsporon furfur								1	1
Effects of inorganic poisons, lead								1	1
Alcoholism		27	23	2	1		1	29	56
Rheumatic fever	1	20	13	4			4		21
Rheumatism	6	61	36	23	1	2	5	309	376
Osteoarthritis	1					1			1
Cyst:									
Mucous		1	1					5	6
Sebaceous								10	10
New growth, nonmalignant:									
Lipoma		5	4	1				3	8
Papilloma		1	1					7	8
Pterygium		1	1						1
New growth, malignant:									
Sarcoma	1	1		1		1			2
Carcinoma	1	2	1			2		1	4
Anæmia		4	2	2					4
Purpura								2	2
Diabetes mellitus		3		2			1	3	6
Congenital malformations		1	1						1
Debility		3	1	1			1	17	20
Local Diseases.									
DISEASES OF THE NERVOUS SYSTEM	4	36	12	17	3	1	7	124	164
Of the nerves—									
Inflammation, neuritis	1	8	3	6				13	22
Of the spinal cord and membranes—									
Cord—									
Degeneration—									
Of lateral columns								1	1
Of posterior columns	1					1		10	11
Of lateral and posterior columns		1			1				1
Of the brain and its membranes—									
Brain—									
Hemorrhage		1					1		1
Anæmia								3	3
Functional nervous disorders with other diseases of undetermined nature—									
Paralysis								1	1
Paraplegia	1	1					2		2
Hemiplegia	1	1		1			1	2	4
Local paralysis		3		2			1	8	11
Incomplete paralysis		1	1						1
Spasm								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE NERVOUS SYSTEM—Con.									
Functional nervous disorders with other diseases of undetermined nature—Continued.									
Torticollis		1		1				1	2
Epilepsy								11	11
Vertigo		4	2	1			1	9	13
Headache		3	2	1				13	16
Neuralgia		7	3	3			1	30	37
Nervous weakness								19	19
Hiccough								1	1
Aphasia		1		1					1
Mental diseases—									
Mania		1			1				1
Melancholia		1			1				1
Delusional insanity		2	1	1				1	3
DISEASES OF THE EYE		10	4	4			2	40	50
Conjunctivitis		2	2					22	24
Conjunctivitis, catarrhal, acute		2	1				1	3	5
Ecchymosis of conjunctiva								1	1
Keratitis		1		1				1	2
Ulceration of cornea								2	2
Opacity of cornea								1	1
Shrunken eyeball								1	1
Iritis		5	1	3			1	2	7
Lenticular cataract								1	1
Amblyopia, ametropia								1	1
Blepharitis marginalis								3	3
Sty								1	1
Ecchymosis of eyelid								1	1
DISEASES OF THE EAR	3	5	3	4	1			26	34
Inflammation of the external meatus, acute								1	1
Accumlation in external meatus of wax or epidermis								15	15
Inflammation of the middle ear		1		1				4	5
Nonsuppurative		1	1						1
Suppurative	3	3	2	3	1			4	10
Obstruction of Eustachian tube								2	2
DISEASES OF THE NOSE		3	3					52	55
Inflammation of soft parts		3	3					49	52
Diseases of septum—inflammation of the naso-pharynx								3	3
DISEASES OF THE CIRCULATORY SYSTEM	4	32	3	23	1	7	2	84	120
Pericarditis		1	1						1
Valvular disease—									
Aortic		9		4		5		8	17
Mitral	1	8		6	1	2		24	33
Aortic and mitral	3	7		9			1	6	16
Pulmonary		1		1					1
Hypertrophy of heart								2	2
Angina pectoris								3	3
Disordered action of the heart								2	2
Abnormal rapidity								3	3
Irregularity								3	3
Arteritis—degeneration of arteries								1	1
Aneurysm of arteries		1		1					1
Phlebitis								1	1
Varix		5	2	2			1	30	35
Dilatation of capillaries								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE RESPIRATORY SYSTEM	2	97	63	24	2	7	4	391	490
Inflammation of mucous membrane of larynx—Catarrhal								2	2
Acute								19	19
Chronic								3	3
Tracheitis		1		1				2	3
Bronchitis—Catarrhal:									
Acute		46	39	5			2	291	337
Chronic		5	2	2	1			42	47
Spasmodic asthma	1	14	1	11		2	1	9	24
Pneumonia	1	18	14	1		3	1		19
Broncho-pneumonia		2		1		1			2
Phthisis:									
Acute								1	1
Chronic								1	1
Tubercular		1			1				1
Pleurisy:									
Acute		10	7	2		1		17	27
Chronic								4	4
DISEASES OF THE DIGESTIVE SYSTEM	7	132	86	40	4	4	4	604	743
Inflammation of the mouth								14	14
Ulceration of the mouth								3	3
Caries of dentine and cementum		1	1					12	13
Inflammation of dental periosteum		1	1					1	2
Abscess of dental periosteum		1		1				1	2
Inflammation of gums and alveoli								2	2
Ulceration of gums and alveoli								1	1
Toothache								7	7
Sore throat								9	9
Inflammation of tonsils		2	2						2
Follicular		7	6	1				45	52
Suppuration	1	3	2	2				2	6
Salivation								1	1
Inflammation of the pharynx		1		1					1
Catarrhal		1	1					19	20
Granular								7	7
Follicular								6	6
Stricture of œsophagus		2		1	1				2
Inflammation of the stomach, catarrhal		15	5	8	1		1	79	94
Ulceration of the stomach, perforating								1	1
Hæmorrhage of the stomach								1	1
Indigestion		8	4	4				88	96
Gastralgia		1		1				5	6
Loss of appetite								1	1
Inflammation of the intestines—									
Enteritis		2	2					8	10
Typhlitis		9	7	1		1		1	10
Colitis		6	6					1	7
Catarrhal		5	4				1	10	15
Hernia	1	10	7	3			1	138	149
Obstruction of the intestines		1				1			1
Intestinal dyspepsia		1		1				1	2
Constipation		6	6					61	67
Colic		2	2						2
Diarrhea	2	10	9	2		1		24	36
Enteralgia		1	1						1
Periproctitis—Abscess		1		1				1	2
Fistula in ano		4	2	2				4	8
Stricture of intestines	1					1			1
Stricture of rectum								3	3
Piles—									
Internal	2	12	11	3				18	32
External		4	3	1				17	21

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Inflammation of the liver—Chronic		4		4					4
Hyperæmia of the liver								3	3
Hypertrophy of the liver		3	1	1	1				3
Jaundice								7	7
Inflammation of hepatic ducts and gall bladder		3	2				1	2	5
Dropsy		5	1	3	1				5
DISEASES OF THE LYMPHATIC SYSTEM	5	71	59	9	1		7	196	272
Inflammation of lymph glands	1	30	23	7	1			168	199
Suppuration	4	41	36	2			7	27	72
Hypertrophy of lymph glands								1	1
DISEASES OF THE URINARY SYSTEM	4	19	2	12		7	2	67	90
Acute nephritis		2		2					2
Bright's disease	4	4		4		4		1	9
Chronic nephritis		8		4		2	2		8
Granular kidney		2		1		1			2
Lithuria								5	5
Inflammation of bladder—									
Acute		1	1					40	41
Subacute								3	3
Chronic								11	11
Calculus of bladder								2	2
Irritability of bladder								1	1
Retention of urine		2	1	1				1	3
Incontinence of urine								3	3
DISEASES OF THE GENERATIVE SYSTEM	10	152	103	40	7		12	507	669
Urethritis								5	5
Gleet								30	30
Abscess of the urethra		1	1					9	10
Stricture of urethra—									
Organic	1	20	9	10			2	35	56
Traumatic	1			1					1
Urethral fistula	1	1		2				1	3
Extravasation of urine		1		1					1
Inflammation of the prostate—acute		1	1					3	4
Hypertrophy of the prostate		3		2			1	4	7
Phimosis		8	6				2	7	15
Paraphimosis		2	2					1	3
Inflammation, glans of the penis		1		1				4	5
Ulcer of penis		2		1			1	4	6
Œdema of penis		1	1						1
Soft chancre	5	85	61	20	5		4	336	426
Inflammation of the scrotum		1		1					1
Pruritus of the scrotum								1	1
Varicocele	1	3	3		1			15	19
Hydrocele of tunica vaginalis		6	3		1		2	4	10
Inflammation of the testicle—									
Acute orchitis		4	4					8	12
Chronic orchitis								2	2
Epididymitis	1	12	12	1				16	29
Spermatorrhœa								15	15
Impotence								2	2
Inflammation of the ovary								1	1
Leucorrhœa								4	4
DISEASES OF THE ORGANS OF LOCOMOTION	6	35	20	13	2	1	5	186	227
Inflammation of the bones—									
Osteitis								2	2
Periostitis		1		1				5	6

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE ORGANS OF LOCOMOTION—Continued.									
Caries	......	1	......	......	......	....	1	....	1
Necrosis	......	4	2	1	1	....	......	1	5
Inflammation of joints—									
Acute synovitis	......	3	2	......	......	....	1	10	13
Chronic synovitis	3	1	1	3	......	....	......	....	4
Ankylosis	......	2	1	1	......	....	.....	4	6
Loose body in joint	......	......	......	......	......	....	......	1	1
Caries of the spine	1	......	......	......	......	....	1	....	1
Posterior curvature of spine	1	2	......	1	......	1	1	....	3
Inflammation of muscles	......	2	1	1	......	....	......	....	2
Contracture muscles	......	......	......	......	......	....	......	1	1
Myalgia	1	11	7	4	......	....	1	123	135
Lumbago	......	2	1	1	......	....	......	24	26
Contracture of fasciæ	......	1	......	......	1	....	......	1	2
Ganglion	......	1	1	......	......	....	......	....	1
Inflammation of bursæ—									
Acute	......	4	4	......	......	....	......	8	12
Chronic	......	......	......	......	......	....	......	5	5
Flat foot	......	......	......	......	......	....	......	1	1
DISEASES OF THE CONNECTIVE TISSUE	......	29	19	6	......	....	4	86	115
Inflammation	......	9	6	3	......	....	......	35	44
Abscess	......	18	13	3	......	....	2	50	68
Gangrene	......	1	......	......	......	....	1	....	1
Œdema	......	1	......	......	......	....	1	1	2
DISEASES OF THE SKIN	5	46	35	13	......	....	3	256	307
Erythema	......	......	......	......	......	....	......	3	3
Urticaria	......	......	......	......	......	....	......	9	9
Prickly heat	......	......	......	......	......	....	......	2	2
Eczema	......	1	1	......	......	....	......	48	49
Impetigo	......	1	......	1	......	....	......	3	4
Pityriasis rubra	......	......	......	......	......	....	......	4	4
Lichen	......	......	......	......	......	....	......	3	3
Psoriasis	......	......	......	......	......	....	......	2	2
Herpes	......	1	1	......	......	....	......	13	14
Zona	......	2	1	1	......	....	......	5	7
Acne	......	......	......	......	......	....	......	9	9
Sycosis	......	......	......	......	......	....	......	3	3
Seborrhea	......	......	......	......	......	....	......	1	1
Chilblain	......	1	1	......	......	....	......	....	1
Ulcer	5	29	24	9	......	....	1	84	118
Boil	......	7	5	1	......	....	1	48	55
Carbuncle	......	1	1	......	......	....	......	3	4
Whitlow	......	1	......	......	......	....	1	3	4
Onychia	......	......	......	......	......	....	......	2	2
Corn	......	1	1	......	......	....	......	3	4
Wen	......	1	......	1	......	....	......	3	4
Hyperidrosis	......	......	......	......	......	....	......	1	1
Pruritus	......	......	......	......	......	....	......	3	3
Keloid	......	......	......	......	......	....	......	1	1
Injuries	**1**	**4**	**2**	**3**	......	....	......	**9**	**14**
GENERAL INJURIES	......	......	......	......	......	....	......	....	....
Effects of heat—burns and scalds	1	1	1	1	......	....	......	9	11
Effects of cold	......	2	1	1	......	....	......	....	2
Multiple injury	......	1	......	1	......	....	......	....	1
LOCAL INJURIES	10	244	175	62	2	2	13	567	821
Contusion of nerves	......	2	......	2	......	....	......	2	4

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
LOCAL INJURIES—Continued.									
Compression of nerves								1	1
Contusion of veins								1	1
Strain of muscles								27	27
Strain of tendons								2	2
Rupture of tendons								2	2
Abrasion of skin		1					1		1
Wound of skin		3	2	1					3
Burn or scald of skin		11	9	2				17	28
Frostbite	1	4	3	2				12	17
Effects on the skin of irritants or corrosives								2	2
Contusion of scalp		2	1	1				2	4
Wound of scalp		10	5	5				10	20
With injury to the aponeurosis		2	1	1				8	10
With injury to the pericranium		2		1		1		1	3
Contusion of skull		1		1					1
Fracture of the vault of skull								1	1
Fracture of the base of skull		1	1						1
Concussion of brain		1	1						1
Contusion of face	1	2	3					6	9
Wound of face and mouth		5	3	2				22	27
Foreign bodies in the nose, antrum, or other cavities		5	3	2				22	27
Fracture of facial bones		9	6	2			1	1	10
Contusion of eyelid		2	2						2
Wound of eyelid		1	1					3	4
Contusion of eyeball		1	1					1	2
Foreign bodies in the conjunctiva or cornea								9	9
Wound of eyeball		1	1						1
Rupture of membrana tympani								1	1
Foreign body in external meatus								2	2
Wound of neck								2	2
Contusion of chest		4	4					19	23
Fracture of ribs		13	10	3				12	25
Fracture of sternum		1		1					1
Wound of parietes of chest								5	5
Inhalation of steam								1	1
Contusion of back		6	5	1				9	15
Sprain of back		2	2					8	10
Contusion of abdomen	1					1		4	5
Wound of parietes of abdomen								3	3
Contusion of the pelvis								1	1
Contusion of the perinæum, scrotum, or penis								8	8
Wound of the male urethra, perinæum, scrotum, testis, or penis	1		1						1
Contusion of testicle								1	1
Contusion of upper extremities	2	7	5	4				33	42
Sprain of shoulder		1	1					12	13
Sprain of elbow								5	5
Sprain of wrist		2	1	1				19	21
Sprain of hand								2	2
Sprain of thumb								1	1
Sprain of fingers								1	1
Wound of upper extremities	1	29	25	4			1	146	176
Wound of joint, upper extremities		2	2						2
Fracture of clavicle		4	2	1			1		4
Fracture of scapula		1	1						1
Fracture of humerus		1	1						1
Fracture of bones of forearm—									
Radius		8	4	2	1		1	2	10
Ulna		2	2					1	3
Both bones		5	2	2			1	4	9

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
LOCAL INJURIES—Continued.									
Fracture of carpus, metacarpus, or phalanges		10	5	4			1	6	16
Dislocation of clavicle		2	1	1				3	5
Dislocation of humerus		6	4	2				1	7
Dislocation of radius and ulna								1	1
Dislocation of phalanges of fingers		1	1					2	3
Dislocation of metacarpus		1		1				1	2
Contusion of lower extremities		24	18	5			1	41	65
Sprain of hip		1	1					2	3
Sprain of knee		3	1	2				5	8
Sprain of ankle		12	10	2				16	28
Sprain of foot		1	1					1	2
Wound of lower extremities		14	11	1			2		14
Wound of joint, lower extremities	1	3	2	2				48	52
Fracture of femur	1	2	2				1		3
Fracture of patella		1					1		1
Fracture of tibia		1	1					2	3
Fracture of fibula		8	6	2				3	11
Fracture of tibia and fibula		2	1				1	3	5
Fracture of bones of foot—Of the phalanges of the toes		2	1		1				2
Dislocation of femur	1	1	1	1					2

SOUTH ATLANTIC.

Diseases.	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
TOTAL CASES	**120**	**1,859**	**1,128**	**600**	**71**	**58**	**122**	**7,379**	**9,358**
General Diseases	**38**	**897**	**573**	**277**	**34**	**19**	**32**	**3,452**	**4,387**
Smallpox		7	5		1	1			7
Cowpox		1	1					116	117
Chicken pox		1	1					1	2
Measles		19	18	1				3	22
Dengue		1		1					1
Influenza		57	54	3				304	361
Mumps		15	13	2				3	18
Diphtheria		3	3						3
Enteric fever	2	17	12	4		2	1		19
Typho-malarial fever		3	3						3
Choleraic diarrhea		2	2					5	7
Dysentery	2	37	34	4		1		42	81
Malarial fever:									
Intermittent	6	234	214	14	1	1	10	928	1,168
Remittent	4	87	74	13	2	1	1	32	123
Phagedæna	1	2	1	2				3	6
Erysipelas		5	4			1		8	13
Tubercle	5	63	1	33	16	11	7	55	123
Syphilis:									
Primary	1	11	8	4				72	84
Secondary	9	97	9	89	2	1	5	435	541
Gonorrhea	4	80	43	35	2		4	796	880
Diseases dependent on animal parasites:									
Tænia solium								4	4
Tænia mediocanellata		1	1						1
Oxyuris vermicularis								2	2
Phthirius inguinalis								3	3
Ringworm								5	5
Sarcoptes scabiei		1	1					13	14
Tinea versicolor								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
Diseases dependent on vegetable parasites:									
Trichophyton tonsurans								2	2
Microsporon furfur								1	1
Effects of vegetable poisons:									
Opium		1			1			1	2
Tobacco								1	1
Rhus								1	1
Effects of inorganic poisons:									
Lead		1		1				1	2
Mercury								1	1
Potash								1	1
Carbolic acid								1	1
Effects of mechanical injuries								1	1
Effects of heat								2	2
Effects of cold		1	1					2	3
Effects of chemical agents								1	1
Effects of excessive exertions and strain								1	1
Scurvy								2	2
Alcoholism		11	6	4			1	8	19
Delirium tremens		1	1					1	2
Rheumatic fever		27	14	9	2		2	13	40
Rheumatism	3	87	42	45	3			481	571
Gout		4	2	2					4
Osteo-arthritis								1	1
Cyst, sebaceous								3	3
New growth, nonmalignant:									
Fibroma		1			1				1
Condyloma								4	4
Osteoma		1			1				1
Papilloma		3	1	2				11	14
Pterigium		2	1	1					2
New growth, malignant								1	1
Chlorosis		1		1				1	2
Anæmia								7	7
Hodgkin's disease		1		1				2	3
Diabetes mellitus	1	3		3	1			3	7
Diabetes insipidus		2		2					2
Debility		6	3	1	1		1	66	72
DISEASES OF THE NERVOUS SYSTEM	36	44	12	18	4	8	38	152	232
Of the nerves—									
Inflammation—neuritis		6	3	1	1		1		6
membranes—									
Inflammation of pia mater and arachnoid		1				1			1
Hemorrhage		1				1			1
brain—									
Sclerosis		2		1			1		2
Hemorrhage		1					1		1
Hyperæmia		1				1			1
Functional nervous disorders, with other diseases of undetermined nature—									
Apoplexy		1				1			1
Paralysis—									
Paraplegia	2	1		1	1		1		3
Hemiplegia	5	1		1			5		6
Local paralysis		1					1	2	3
Incomplete paralysis		5		5				3	8
Chorea		2		2					2
Spasm		1	1					1	2
Torticollis								2	2
Somnambulism								1	1
Epilepsy		1		1				2	3

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of fiscal year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE NERVOUS SYSTEM—Con.									
Functional nervous disorders, with other diseases of undetermined nature—Continued.									
Vertigo		1		1				5	6
Headache								16	16
Neuralgia		8	6	1	1			106	114
Nervous weakness	1	4	1	4				14	19
Mental diseases—									
Mania—									
Acute	2	3	1				4		5
Chronic	8					1	7		8
Melancholia—									
Acute	2						2		2
Chronic	9			1			8		9
Dementia—									
Acute		1				1			1
Chronic	4					1	3		4
Epileptic	1						1		1
General paralysis of the insane	2	1				1	2		3
Delusional insanity		1			1				1
DISEASES OF THE EYE	1	10	3	6	1		1	83	94
Conjunctivitis								2	2
Conjunctivitis, catarrhal								32	32
Acute		5	2	3				20	25
Keratitis		1		1				2	3
Opacity of cornea								1	1
Glancoma		1		1					1
Scleritis								1	1
Iritis								6	6
Retinitis								1	1
Lenticular cataract	1	2		1	1		1	1	4
Ametropia								4	4
Squint								1	1
Inflammation lachrymal gland								3	3
Obstruction of nasal duct								1	1
Abscess of eyelid		1	1						1
Hemorrhage intra ocular								1	1
DISEASES OF THE EAR	1	6	4	3				53	60
Inflammation of the external meatus								1	1
Acute	1	1		2				3	5
Abscess		1		1				1	2
Inflammation of the middle ear		2	2					17	19
Nonsuppurative								19	19
Suppurative		1	1					9	10
Ulceration of membrana tympani		1	1					1	2
Tinnitus								1	1
Deafness								1	1
DISEASES OF THE NOSE								34	34
Inflammation of soft parts								34	34
Diseases of septum								7	7
Epistaxis								4	4
Inflammation of the naso-pharynx								2	2
Hypertrophy pharyngial tonsils								1	1
DISEASES OF THE CIRCULATORY SYSTEM	5	42	1	25	7	11	3	50	97
Endocarditis		1				1		4	5
Valvular disease—									
Aortic	1	8		7	1	1		12	21
Mitral	2	21		12	4	5	2	13	36

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE CIRCULATORY SYSTEM—Continued.									
Mitral and aortic		4		1	1	2		4	8
Hypertrophy of heart								2	2
Angina pectoris								3	3
Disordered action of the heart—									
Abnormal rapidity								6	6
Irregularity		2		2				1	3
Aneurism of arteries	2	3		2	1	2		1	6
Obstruction of arteries, thrombosis		1					1	1	2
Phlebitis		1	1						1
Varix		1		1				3	4
DISEASES OF THE RESPIRATORY SYSTEM	1	95	53	31	3	5	4	606	702
Hay fever								2	2
Inflammation of mucous membrane of larynx—Catarrhal		1	1						1
Acute		2	1	1				39	41
Chronic		1			1				1
Bronchitis—Catarrhal:									
Acute		40	28	11	1			492	532
Chronic		11	4	4			3	21	32
Spasmodic asthma		3	1	2				14	17
Pneumonia		20	13	3		4		1	21
Phthisis:									
Acute								17	17
Chronic		2		1		1		1	3
Tubercular		4		3			1	2	6
Pleurisy:									
Acute		8	4	3	1			13	21
Chronic	1	2	1	2				1	4
Emphysema		1		1				3	4
DISEASES OF THE DIGESTIVE SYSTEM	5	143	98	31	3	8	8	1,135	1,283
Fissure of the lips								1	1
Inflammation of the mouth								7	7
Ulceration of the mouth								8	8
Suppuration of the dental pulp								30	30
Necrosis of cementum								1	1
Abscess of dental periosteum								3	3
Inflammation of gums and alveoli		1	1					8	9
Suppuration of alveoli								4	4
Suppuration of gums		1		1					1
Ulceration of gums and alveoli		1	1					2	3
Caries of the alveoli		1	1						1
Toothache								20	20
Ulceration of the tongue		1		1				2	3
Sore thoat		5	4	1				94	99
Inflammation of tonsils		1	1					3	4
Follicular		8	7	1				43	51
Suppuration		5	5					2	7
Hypertrophy of tonsils								2	2
Inflammation of the pharynx:									
Catarrhal		2		1			1	24	26
Follicular		1	1					1	2
Ulceration of pharynx								2	2
Inflammation of the stomach		1	1					9	10
Catarrhal		19	14	4		11		25	44
Ulceration of the stomach—Superficial	1		1						1
Indigestion		2	1		1			203	205
Pyrosis								1	1
Gastralgia		2	2					6	8
Loss of appetite								10	10

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE DIGESTIVE SYSTEM—Con.									
Inflammation of intestines								1	1
Enteritis	1	6	7					16	23
Typhlitis		5	3	1			1	1	6
Colitis		8	4	3		1		2	10
Catarrhal		3	2	1				9	12
Ulceration of the intestines								1	1
Fæcel accumulation		1	1					3	4
Hernia		6	2	3			1	106	112
Obstruction of the intestines		2	1			1			2
Intestinal dyspepsia								16	16
Constipation		1	1					196	197
Colic		5	3	1			1	32	37
Diarrhea		22	17	2	1	1	1	162	184
Enteralgia		1					1		1
Inflammation of the rectum		1	1						1
Periproctitis	1					1			1
Abscess		2	1				1	1	3
Fistula in ano		4	1	3				11	15
Piles—									
Internal	1	2	2	1				7	10
External		4	2	2				36	40
Mixed								1	1
Pruritus ani		1		1				2	3
Inflammation of the liver—									
Acute		3		2	1			3	6
Chronic	1	1		1		1			2
Hyperæmia of the liver		5	5					11	16
Jaundice		1	1					2	3
Inflammation of hepatic ducts and gall bladder		6	4	1			1	4	10
Inflammation of the peritonæum		1				1			1
Dropsy		1				1			1
Tympanites								1	1
DISEASES OF THE LYMPHATIC SYSTEM	2	50	32	16	1		3	132	184
Inflammation of lymph glands	1	34	23	11			1	107	142
Suppuration	1	15	8	5	1		2	20	36
Hypertrophy of lymph glands								2	2
Inflammation of lymphatics		1	1					1	2
Dilatation of lymphatics								2	2
DISEASES OF THE URINARY SYSTEM	4	21	13	8		3	1	94	119
Acute nephritis		4	2	2				1	5
Bright's disease	1	3		2		2		5	9
Chronic nephritis	2			1		1		7	9
Nephralgia								2	2
Abscess—Pyonephrosis	1			1					1
Calculus in ureter		3	3					2	5
Hæmaturia		3	2	1				6	9
Lithuria								4	4
Inflammation of bladder—									
Acute		6	4	1			1	15	21
Subacute								12	12
Chronic								3	3
Irritability of bladder		1	1					28	29
Retention of urine		1	1					5	6
Incontinence of urine								2	2
Distension of bladder								2	2
DISEASES OF THE GENERATIVE SYSTEM	5	145	71	54	7	2	16	375	525
Urethritis								3	3
Gleet								2	2
Hæmorrhage of the urethra								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
			Discharged.						
	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
Diseases of the Generative System—Continued.									
Stricture of the urethra		5	1	4					5
Organic	2	14	4	5	1	2	4	18	34
Spasmodic								1	1
Urethral fistula		3	1		1		1		3
Inflammation of the prostate, acute		1		1					1
Prostatorrhœa								1	1
Hypertrophy of the prostate	1	1		2					2
Posthitis								2	2
Phimosis		6	3	2	1			5	11
Paraphimosis		1		1				7	8
Inflammation of the penis								2	2
Of the glans		2		2				19	21
Ulcer of penis		30	12	13	1		4	71	101
Soft chancre	2	63	34	23	1		7	184	249
Inflammation of the scrotum		1	1					1	2
Pruritus of the scrotum								1	1
Hydrocele of the spermatic cord								3	3
Varicocele		4	2		2			13	17
Hydrocele of tunica vaginalis		2	2					5	7
Inflammation of the testicle		1	1					7	8
Acute orchitis		9	9					22	31
Chronic orchitis								1	1
Epididymitis		2	1	1				1	3
Spermatorrhœa								1	1
Inflammation of the uterus								1	1
Displacements and distortions of the uterus								1	1
Amenorrhœa								1	1
Inflammation of male breast								1	1
Diseases of the Organs of Locomotion	2	42	31	9			4	162	206
Inflammation of the bones, periostitis		2	2						2
Caries								1	1
Necrosis	1	5	3	2			1	2	8
Hypertrophy of the bones								1	1
Inflammation of joints								2	2
Acute synovitis		1		1				6	7
Chronic synovitis								2	2
Hydrops articuli								1	1
Ankylosis		1					1		1
Dislocation of articular cartilage		1		1				1	2
Loose body in joint								1	1
Relaxation of ligaments								1	1
Psoas, lumbar, and other abscesses		1		1					1
Inflammation of muscles		1	1					1	2
Suppuration of muscles		1					1		1
Myalgia		24	21	2			1	104	128
Lumbago		3	3					31	34
Inflammation of sheaths of tendons		1		1				2	3
Thecal abscess								1	1
Inflammation of bursæ, acute	1			1				2	3
Abscess of bursæ		1	1						1
Bunion								1	1
Bursal cyst								1	1
Club foot								1	1
Diseases of the Connective Tissues	3	43	33	11	2			84	130
Inflammation	2	12	13	1				32	46
Abscess	1	31	20	10	2			47	79
Œdema								5	5

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE SKIN	7	81	43	41	3		1	426	514
Erythema	1		1					3	4
Urticaria		1	1					12	13
Prickly heat								3	3
Eczema		7	2	5				104	111
Impetigo		1		1					1
Pityriasis rubra		1		1					1
Prurigro								1	1
Psoriasis		3		2	1			7	10
Herpes								14	14
Zona								4	4
Pemphigus		1		1					1
Acne								10	10
Sycosis								3	3
Seborrhœa								1	1
Chloasma								1	1
Area								1	1
Alopecia								1	1
Chilblain		1		1				1	2
Ulcer	3	34	16	19	1		1	118	155
Cicatrices								1	1
Boil	2	10	9	3				90	102
Carbuncle		11	7	4				13	24
Whitlow	1	4	3	2				18	23
Onychia		1	1					8	9
Corn								3	3
Cheloid		3	1	1	1			2	5
Wen		2	2					6	8
Pruritus								1	1
Lupus		1		1					1
Injuries	**2**	**8**	**5**	**4**			**1**	**24**	**34**
GENERAL INJURIES:									
Effects of heat—									
Burns and scalds	2	4	3	3				23	29
Heat stroke		2	2						2
Effects of cold								1	1
Multiple injury		2		1			1		2
LOCAL INJURIES	8	232	156	66	6	2	10	510	750
Contusion of muscles								1	1
Strain of muscles								12	12
Contusion of skin		1	1						1
Abrasion of skin								4	4
Burn or scald of skin		3	2	1				7	10
Frostbite		16	14	1			1	6	22
Burn or scald of mucous membrane		1	1						1
Contusion of scalp		1		1				1	2
Wound of scalp		4	2	2				9	13
With injury to the aponeurosis		9	8	1				5	14
Contusion of skull								1	1
Fracture of the base of skull		1				1			1
Concussion of brain		1		1					1
Contusion of face								6	6
Wound of face and mouth		3	1	2				19	22
Fracture of facial bones		3	1	1			1	3	6
Contusion of eyelid								4	4
Wound of conjunctiva								1	1
Foreign bodies in the conjunctiva or cornea		1		1				16	17
Wound of eyeball		2	1	1					2
Foreign body in external meatus								2	2
Contusion of chest		5	3	2				9	14

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
LOCAL INJURIES—Continued.									
Fracture of ribs	1	3	4					4	8
Wound of parietes of chest		1	1						1
Contusion of back		10	8	2				17	27
Sprain of back		6	4	2				24	30
Wound of back		1	1						1
Concussion of cord		1	1						1
Contusion of abdomen		1	1					2	3
Wound of the male urethra, perinæum, scrotum, testis, or penis		1	1					1	2
Fracture or dislocation of pelvic bones		1	1						1
Contusion of testicle		2	2					1	3
Contusion of upper extremities		9	8	1				57	66
Sprain of shoulder		1		1				4	5
Sprain of wrist		4	4					12	16
Sprain of thumb		1	1					4	5
Wound of upper extremities	1	36	22	13	1		1	132	169
Fracture of clavicle		1					1		1
Fracture of humerus		4	2	2					4
Fracture of bones of forearm:									
Radius		4	1	3				2	6
Ulna		4	3	1					4
Both bones		2	1	1					2
Fracture of carpus, metacarpus, or phalanges	1	5	3		3			10	16
Dislocation of clavicle		5	3	1	1			1	6
Dislocation of phalanges of fingers		1	1					1	2
Contusion of lower extremities	2	16	16	2				45	63
Sprain of knee		3	2	1				18	21
Sprain of ankle		10	5	3	1		1	16	26
Sprain of foot								2	2
Wound of lower extremities		29	15	13			1	33	62
Wound of joint, lower extremities		2	2						2
Fracture of femur		5	2			1	2		5
Fracture of tibia		1					1	2	3
Fracture of tibia and fibula	3	5	5	2			1		8
Fracture of bones of foot		1	1						1
Of the tarsus		1		1					1
Of the metatarsus		1	1					1	2
Of the phalanges of the toes		2		2					2
Dislocation of femur		1		1					1

GULF.

Diseases.	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
TOTAL CASES	74	1,360	893	382	23	59	77	4,798	6,232
General Diseases	**30**	**664**	**462**	**176**	**8**	**20**	**28**	**2,328**	**3,022**
Smallpox		1	1		1			2	4
Cowpox		1		1				408	409
Measles		8	8					2	10
Typhus		1				1			1
Influenza		30	23	5		1	1	108	138
Mumps		5	3	2				3	8
Diphtheria		2	2					1	3
Simple continued fever		1					1		1
Enteric fever	2	12	11			2	1	4	18
Choleraic diarrhea								4	4
Dysentery	2	32	28	4		1	1	28	62
Yellow fever		7	3			4			7

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
Malarial fever:									
Intermittent	6	191	181	10	2	1	3	388	585
Remittent	3	94	77	15			5	35	132
Erysipelas		4	4					4	8
Phlegmonous								1	1
Tubercle	4	34		28		8	2	45	83
Yaws								1	1
Syphilis:									
Primary		8	1	7				48	56
Secondary	5	75	29	44		1	6	237	317
Gonorrhea	4	38	18	18	2		4	461	503
Diseases dependent on animal parasites:									
Tænia solium		4	4					5	9
Tænia mediocanellata		1			1				1
Pediculis inguinalis								1	1
Sarcoptes scabiei		1	1						1
Tinia circinata		1		1				2	3
Tinia saginati		1	1					5	6
Tinia tonsurans								1	1
Tinia versicolor		1		1					1
Diseases dependent on vegetable parasites—Trichophyton tonsurans								2	2
Effects of animal poison—Bite of roach								1	1
Effects of vegetable poisons—									
Tobacco								2	2
Turpentine								1	1
Morphine								1	1
Effects of inorganic poisons, lead		2	2					1	3
Effects of the presence of foreign bodies								2	2
Effects of heat		2		1			1		2
Alcoholism		16	13	2	1			15	31
Rheumatic fever	2	7	6	2			1	9	18
Rheumatism	2	66	35	30	1		2	444	512
Gout		1	1					7	8
Cyst—									
Sebaceous								4	4
Bursal		1	1						1
Chalazion		1	1						1
New growth, nonmalignant—									
Lipoma		3	2	1					3
Neuroma		1		1					1
Papilloma		2	2					3	5
Fatty tumor, abdomen								1	1
New growth, malignant—									
Sarcoma		1		1				1	2
Carcinoma		2	1			1		1	3
Anæmia		3	1	2				4	7
Diabetes mellitus								5	5
Debility		2	2					30	32
Local Diseases	**33**								
DISEASES OF THE NERVOUS SYSTEM	4	24	9	9	2	2	6	106	134
Of the nerves, neuritis		5	5						5
Of the spinal cord and membranes—Membranes, anterior poliomyelitis								2	2
Of the spinal cord and membranes—Cord—									
Inflammation, local		1	1					1	2
Degeneration of posterior columns		1		1					1
Of the brain and its membranes—Membranes—Inflammation—									
Of dura mater	1						1		1
Of pia mater and arachnoid	1				1				1

Table VII.—Tabular Statement, by Districts, of Diseases and Injuries Treated during the Year ended June 30, 1900—Continued.

GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
Diseases of the Nervous System—Con.									
Of the brain and its membranes—									
Brain, hemorrhage		4		1		2	1		4
Functional nervous disorders with other diseases of undetermined nature—									
Paralysis—									
Paraplegia		1					1		1
Hemiplegia		4		3			1		4
Local paralysis		1		1				4	5
Incomplete paralysis								1	1
Spasm								2	2
Epilepsy		1		1				1	2
Vertigo								3	3
Headache								4	4
Hyperæsthesia								1	1
Anæsthesia								2	2
Neuralgia	1	5	3	2	1			78	84
Nervous weakness		1					1	6	7
Mental diseases—									
Mania	1						1		1
Dementia								1	1
Diseases of the Eye	2	13	5	10				37	52
Conjunctivitis, catarrhal, acute		6	1	5				16	22
Keratitis		2	1	1				3	5
Ulceration of cornea		1	1					2	3
Iritis		3	1	2				1	4
Lenticular cataract								1	1
Hemorrhage into retinal layer	1			1					1
Dacryo-lithiasis								1	1
Blepharitis marginalis								1	1
Abscess of eyelid	1		1						1
Ectropion		1		1					1
Diseases of the Ear		7	5	1	1			40	47
Inflammation of the external meatus, acute								11	11
Accumulation in external meatus of wax or epidermis		1	1					21	22
Inflammation of the middle ear—									
Nonsuppurative		2	2					6	8
Suppurative		3	2		1			2	5
Tinnitus		1		1					1
Diseases of the Nose								19	19
Inflammation of soft parts								19	19
Diseases of septum		1	1					2	3
Epistaxis		1	1					2	3
Diseases of the Circulatory System	2	22	3	14	3	2	2	25	49
Endocarditis	1			1					1
Valvular disease—									
Aortic		3	1	1	1			2	5
Mitral		4		3	1			3	7
Mitral and aortic		4	1	1		1	1	2	6
Pulmonary		1		1					1
Dilatation capillaries		1	1					1	2
Hypertrophy of heart		3		3				1	4
Dilatation of heart		2		2				1	3
Angina pectoris		1			1				1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE CIRCULATORY SYSTEM—Continued.									
Disordered action of the heart—									
Abnormal rapidity								10	10
Irregularity								3	3
Aneurism of arteries	1	2		1		1	1	1	4
Varix		1		1				1	2
DISEASES OF THE RESPIRATORY SYSTEM	6	61	32	21		11	3	324	391
Inflammation of mucous membrane of larnyx, catarrhal, acute								4	4
Bronchitis—									
Catarrhal, acute	1	12	10	3				276	289
Catarrhal, chronic	1	2	2	1				16	19
Spasmodic asthma		2		1			1	1	3
Hemorrhage of lung		1	1						1
Hæmoptysis								1	1
Pneumonia		18	13	2		2	1	5	23
Abscess of lung		1	1						1
Chronic instertitial inflammation								2	2
Phthisis—									
Acute								2	2
Tubercular	4	17		12		9			21
Emphysema		1					1		1
Pleurisy—									
Acute		7	5	2				12	19
Chronic								5	5
DISEASES OF THE DIGESTIVE SYSTEM	5	123	92	16	1	12	7	734	862
Inflammation of the mouth								3	3
Caries of dentine and cementum								19	19
Abscess of dental periosteum		1	1					5	6
Inflammation of gums and alveoli								1	1
Ulceration of gums and alveoli		1	1						1
Toothache								12	12
Inflammation of the tongue								2	2
Ulceration of the tongue								1	1
Sore throat		1	1					7	8
Inflammation of tonsils								7	7
Follicular		5	5					14	19
Suppuration		2		1		1		1	3
Elongated uvula								1	1
Salivation		1	1					4	5
Inflammation of the pharynx								1	1
Catarrhal		4	4					6	10
Granular								1	1
Follicular								13	13
Inflammation of the stomach—Catarrhal		16	12	1		2	1	45	61
Indigestion		6	5	1				138	144
Gastralgia		1		1					1
Inflammation of the intestines—									
Enteritis		4	4					5	9
Typhlitis		1	1						1
Colitis								1	1
Catarrhal	1	13	11	1		2		24	38
Ulceration of the intestines		1				1			1
Fecal accumulation		2	2						2
Hernia		11	5	2		1	3	101	112
Constipation		8	6	2				165	173
Colic		4	4					11	15
Diarrhea	1	15	13	1	1		1	80	96
Periproctitis, abscess	1	2	2			1			3
Fistula in ano		6	5	1				2	8

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
Diseases of the Digestive System—Con.									
Prolapse of the rectum								2	2
Ulceration, rectum		1	1						4
Piles—									
Internal		2	2					12	11
External		1		1				18	19
Mixed		2		1			1	16	18
Inflammation of the liver—									
Acute	1	5	2	3		1		1	7
Chronic		3				2	1	2	5
Hyperæmia of the liver								7	7
Hypertrophy of the liver								1	1
Jaundice	1		1					2	3
Inflammation of hepatic ducts and gall bladder		2	2					3	5
Biliary colic		1	1						1
Inflammation of the peritoneum		1				1			1
Diseases of the Lymphatic System	1	52	39	10	2		2	54	107
Hypertrophy of spleen								2	2
Inflammation of lymph glands	1	39	27	10	1		2	37	77
Suppuration		13	12		1			14	27
Inflammation of lymphatics								1	1
Diseases of the Urinary System	4	20	4	13		4	3	53	77
Acute nephritis		4		3		1		3	7
Bright's disease	1	5		2		2	2	5	11
Chronic nephritis	1	1		2				5	7
Granular kidney		2		1		1			2
Calculus in kidney								1	1
Hæmaturia								1	1
Phosphaturia								1	1
Inflammation of bladder		1		1				11	12
Acute	1	3	1	2			1	12	16
Chronic	1			1				7	8
Hypertrophy of bladder								1	1
Calculus of bladder		1	1					1	2
Irritability of bladder								2	2
Retention of urine		2	1	1					2
Incontinence of urine		1	1					3	4
Diseases of the Generative System	6	91	55	27	3	1	11	204	301
Urethritis								4	4
Gleet								11	11
Hemorrhage of the urethra		1	1						1
Stricture of urethra—									
Organic	1	28	18	9	1	1		27	56
Spasmodic								2	2
Urethral fistula		1					1		1
Prostatarrhœa								1	1
Hypertrophy of the prostate								8	8
Phimosis		5	4	1				1	6
Inflammation of glans of penis								2	2
Abscess of penis								1	1
Ulcer of penis		8	6	1			1	21	29
Œdema of penis		1		1					1
Soft chancre	5	32	19	10			8	94	131
Inflammation of the scrotum								1	1
Pruritus of the scrotum								1	1
Hydrocele of the spermatic cord								1	1
Varicocele		2	1	1				4	6
Hydrocele of tunica vaginalis								6	6

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE GENERATIVE SYSTEM—Continued.									
Inflammation of the testicle								2	2
Acute orchitis		11	5	3	2		1	8	19
Chronic orchitis								2	2
Epididymitis		2	1	1				1	3
Spermatorrhœa								4	4
Impotence								1	1
Inflammation, male breast								1	1
DISEASES OF THE ORGANS OF LOCOMOTION	2	25	18	7	1		1	74	101
Inflammation of the bones—Periostitis								1	1
Necrosis		1		1					1
Inflammation of joints—Acute synovitis	1	4	2	3				1	6
Myalgia	1	17	15	3				68	86
Atrophy, muscles								1	1
Thecal abscess		1					1	1	2
Inflammation of bursæ—Acute		1	1					1	2
Bunion								1	1
Flat foot		1			1				1
DISEASES OF THE CONNECTIVE TISSUE	1	31	25	5	1		1	49	81
Inflammation		15	11	3			1	24	39
Abscess	1	16	14	2	1			22	39
Œdema								3	3
DISEASES OF THE SKIN		41	24	15		1	1	207	248
Urticaria								1	1
Prickly heat								4	4
Eczema		2	1	1				58	60
Pityriasis rubra								2	2
Herpes		1	1					11	12
Zona								1	1
Pemphigus		1		1				1	2
Dermatitis herpetiformis		1	1					2	3
Acne								7	7
Gutta rosea								2	2
Alopecia								1	1
Ulcer		17	8	8			1	49	66
Boil		6	6					45	51
Carbuncle		7	5	1		1		6	13
Whitlow		4	1	3				10	14
Onychia		2	1	1				1	3
Corn								1	1
Cheloid								1	1
Wen								2	2
Pruritus								1	1
Lupus								1	1
Injuries		12	2	5		4	1	21	33
GENERAL INJURIES:									
Effects of heat—									
Burns and scalds		8	2	2		3	1	18	26
Heat stroke								2	2
Effects of chemical irritants and corrosives								1	1
Multiple injury		2		1		1			2
Exhaustion		2		2					2
LOCAL INJURIES	11	173	117	53	1	2	11	521	705
Rupture nerve								1	1
Contusion of muscles								2	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
LOCAL INJURIES—Continued.									
Strain of muscles								1	1
Strain of tendons		2	1	1					2
Rupture of tendons								1	1
Abrasion of skin								7	7
Wound of skin								1	1
Burn or scald of skin		2	2					2	4
Frostbite								44	44
Burn or scald of mucous membrane								2	2
Contusion of scalp								2	2
Wound of scalp		2	2					12	14
With injury to the aponeurosis		3	2	1				4	7
With injury to the bone								1	1
Fracture of the base of skull								1	1
Concussion of brain		1				1			1
Laceration brain		1		1					1
Contusion of face		2	1				1	2	4
Wound of face and mouth		4	3	1				8	12
Fracture of facial bones		4	2	2				1	5
Contusion of eyelid								1	1
Wound of eyelid								2	2
Foreign bodies in the conjunctiva or cornea								3	3
Compression chest		1		1				1	2
Contusion of neck								1	1
Wound of neck								1	1
Foreign body in the food passages								1	1
Contusion of chest		2	2					15	17
Dislocation of costal cartilages		2		1	1			1	3
Fracture of ribs	1	9	7	3				6	16
Wound of parietes of chest	1	1	1	1				1	3
Contusion of back		10	8	2				6	16
Sprain of back		5	2	3				40	45
Wound of back		1	1					3	4
Concussion of cord		2		2					2
Wound of parietes of abdomen		1	1					1	2
Contusion of the pelvis		1		1					1
Contusion of the perinæum, scrotum, or penis		1	1					1	2
Wound of the male urethra, perinæum, scrotum, testis, or penis		2	1				1	2	4
Contusion of testicle								1	1
Contusion of upper extremities	1	5	4	2				18	24
Sprain of shoulder		2	1	1				19	21
Sprain of elbow								4	4
Sprain of neck								1	1
Sprain of wrist		3	3					7	10
Sprain of hand								3	3
Sprain of fingers								1	1
Wound of upper extremities	1	21	11	10			1	107	129
Fracture of clavicle		2	1				1		2
Fracture of scapula								1	1
Fracture of humerus	1	3	2	1			1		4
Fracture of bones of forearm—									
Ulna		1	1					1	2
Both bones	1	1	1	1				5	7
Wound of bursa								1	1
Fracture of carpus, metacarpus, or phlanges		3	3					6	9
Dislocation of clavicle								1	1
Dislocation of humerus		2	1	1					2
Dislocation of radius		1		1				1	2
Dislocation of radius and ulna		2	1	1					2
Dislocation of phlanges of fingers		1		1					1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDING JUNE 30, 1900—Continued.

GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
LOCAL INJURIES—Continued.									
Contusion of lower extremities		13	13					73	86
Sprain of hip		1	1					3	4
Sprain of knee		2	1	1				12	14
Sprain of ankle		8	7				1	33	41
Sprain of foot		2	2					1	3
Internal derangement of joints								41	41
Wound of lower extremities	4	32	22	10		1	3		36
Wound of joint, lower extremities								2	2
Fracture of femur	1	1	1				1		2
Fracture of tibia		5	2	2			1	1	6
Fracture of fibula		1		1					1
Fracture of tibio and fibula		1	1						1
Fracture of bones of foot—of the tarsus		1	1						1

OHIO.

TOTAL CASES	**62**	**971**	**665**	**277**	**16**	**37**	**38**	**3,571**	**4,604**
General Diseases	**25**	**382**	**254**	**107**	**9**	**19**	**18**	**1,384**	**1,791**
Smallpox		3	1				2	2	5
Cowpox								59	59
Measles		2	2						2
Rubella								1	1
Influenza		24	22	2				31	55
Mumps								2	2
Diphtheria		1	1						1
Enteric fever	1	22	16	1		2	4		23
Choleraic diarrhea		2	2						2
Dysentery		13	9	1			3	25	38
Malarial fever:									
Intermittent	6	79	78	6		1		277	362
Remittent	2	27	24	4		1		19	48
Erysipelas		3	3						3
Tubercle	10	23		12	6	14	1	43	76
Syphilis:									
Primary		7	1	6				5	12
Secondary	2	47		46	1		2	237	286
Gonorrhea	2	22	16	6			2	286	310
Diseases dependent on animal parasites:									
Tænia solium								3	3
Tænia mediocanellata								1	1
Ascaris lumbricoides								1	1
Phthirius inguinalis								1	1
Tinea circinata								1	1
Sarcoptes scabiei								1	1
Diseases dependent on vegetable parasites—Trichophyton tonsurans								2	2
Effects of vegetable poisons:									
Morphine		1	1						1
Tobacco								6	6
Iodine		1	1						1
Rhus								1	1
Alcoholism		21	20	1				12	33
Rheumatic fever		16	11	4	1				16
Rheumatism	2	60	43	15			4	332	394
Cyst, sebaceous								2	2
New growth, nonmalignant:									
Lipoma								1	1
Papilloma								5	5

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
New growth, malignant:									
Sarcoma		1	1						1
Carcinoma		1			1				1
Squamous carcinoma		1	1					1	2
Anæmia		1		1					1
Diabetes insipidus								1	1
Leucocythemia		1				1			1
Debility		3	1	2				26	29
DISEASES OF THE NERVOUS SYSTEM	5	13	3	7	3	1	4	100	118
Of the nerves—									
Inflammation, neuritis		1		1				2	3
Of the spinal cord and membranes, cord—									
Degeneration of posterior columns	2	6		3	3	1	1	7	15
Of the brain and its membranes, membranes—									
Inflammation	1			1					1
Functional nervous disorders with other diseases of undetermined nature—									
Paralysis, hemiplegia	2	1					3	1	4
Torticollis								1	1
Vertigo								5	5
Headache		1		1				10	11
Neuralgia		2	2					61	63
Hysteria		2	1	1				3	5
Nervous weakness								9	9
Hiccough								1	1
DISEASES OF THE EYE	1	9	4	4			2	34	44
Conjunctivitis, catarrhal—									
Acute		4	3	1				25	29
Chronic		1	1						1
Purulent		1					1		1
Iritis		3		2			1	3	6
Ametropia								1	1
Squint								1	1
Sty								3	3
Ecchymosis of eyelid								1	1
Entropion	1			1					1
DISEASES OF THE EAR		1	1					14	15
Inflammation of the external meatus—acute								1	1
Accumulation in external meatus of wax or epidermis								5	5
Inflammation of the middle ear—									
Nonsuppurative		1	1					5	6
Suppurative								2	2
Deafness								1	1
DISEASES OF THE NOSE		4		4				51	55
Inflammation of soft parts		4		4				51	55
Diseases of septum								2	2
Inflammation of the accessory sinuses								1	1
Inflammation of the naso-pharynx								1	1
DISEASES OF THE CIRCULATORY SYSTEM	3	16		16		3		55	74
Valvular disease—									
Aortic	1	4		5				4	9
Mitral	1	10		8		3		32	43
Mitral and aortic		2		2				5	7

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE CIRCULATORY SYSTEM—Continued.									
Arteritis—degeneration of arteries	1			1					1
Phlebitis								1	1
Varix								13	13
DISEASES OF THE RESPIRATORY SYSTEM	1	91	63	22	1	6		429	521
Inflammation of mucous membrane of larynx—catarrhal—									
Acute		3	3					7	10
Chronic		1		1				4	5
Bronchitis—catarrhal—									
Acute		34	30	3	1			356	390
Chronic		3		3				22	25
Spasmodic asthma	1	8	1	8				23	32
Congestion of lung		1		1				2	3
Hemorrhage of lung		1	1						1
Pneumonia		24	21	1		2		1	25
Broncho-pneumonia		1	1						1
Phthisis—									
Acute								2	2
Chronic		1		1					1
Tubercular		5		2		3		2	7
Pleurisy—									
Acute		8	6	1		1		6	14
Chronic		1		1				2	3
Emphysema								2	2
DISEASES OF THE DIGESTIVE SYSTEM	7	102	88	17	1	2	1	611	720
Fissure of the lips								1	1
Inflammation of the mouth								9	9
Ulceration of the mouth								1	1
Caries of dentine and cementum								2	2
Abscess of dental periosteum		1	1						1
Inflammation of gums and alveoli								1	1
Toothache								9	9
Inflammation of the tongue								2	2
Ulceration of the tongue								1	1
Sore throat		1	1					5	6
Inflammation of tonsils		1	1						1
Follicular		10	9	1				56	66
Suppuration		2	2					1	3
Inflammation of the pharynx—									
Catarrhal								21	21
Granular								1	1
Post-pharyngeal abscess								1	1
Inflammation of the stomach—Catarrhal	1	12	9	4				55	68
Indigestion		6	5	1				89	95
Gastralgia		1		1				8	9
Inflammation of the intestines—									
Enteritis		8	7	1				31	39
Typhlitis		2	2						2
Catarrhal	2	15	16				1	57	74
Hernia		3	3					41	44
Intestinal dyspepsia								5	5
Constipation		1	1					67	68
Colic		1	1					2	3
Diarrhea		20	15	4	1			65	85
Inflammation of the rectum		1	1					1	2
Fissure of the anus		1	1						1
Fistula in ano	1	4	4	1				1	6
Hemorrhage								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE DIGESTIVE SYSTEM—Con.									
Piles—									
Internal	1	2	1	2				9	12
External		3	3					24	27
Mixed		3	2	1					3
Pruritus ani								2	2
Inflammation of the liver—Acute								34	34
Hyperæmia of the liver		1	1					1	2
Hypertrophy of the liver	1					1			1
Jaundice	1	1	2					6	8
Acquired deformity		1		1					1
Inflammation of hepatic ducts and gall bladder								1	1
Inflammation of the peritoneum		1				1			1
DISEASES OF THE LYMPHATIC SYSTEM	5	33	29	8		1		35	73
Abscess of spleen		1				1			1
Inflammation of lymph glands	5	26	27	4				29	60
Suppuration		6	2	4				6	12
DISEASES OF THE URINARY SYSTEM	1	16	2	12		3		36	53
Acute nephritis		2	1			1		1	3
Bright's disease		7		6		1		3	10
Chronic nephritis		4		3		1		4	8
Hematuria	1			1				2	3
Inflammation of bladder—									
Acute		1	1					14	15
Subacute								2	2
Chronic		2		2				7	9
Irritability of bladder								1	1
Incontinence of urine								2	2
DISEASES OF THE GENERATIVE SYSTEM	4	84	51	30		1	6	252	340
Stricture of urethra—organic		11	6	5				12	23
Urethral fistula								4	4
Extravasation of urine		1				1			1
Hypertrophy of the prostate								4	4
Phimosis	1	17	14	2			2	4	22
Paraphimosis		4	3	1					4
Inflammation of the penis—of the glans		1	1					4	5
Ulcer of penis		11	5	5			1	1	12
Soft chancre	3	26	12	14			3	133	162
Abscess of the scrotum								1	1
Pruritus of the scrotum								4	4
Hydrocele of the spermatic cord								1	1
Varicocele								7	7
Hydrocele of tunica vaginalis		1		1				4	5
Inflammation of the testicle								4	4
Acute orchitis		7	6	1				20	27
Epididymitis		4	3	1				8	12
Abscess of testicle		1	1						1
Impotence								3	3
Inflammation of the ovary								1	1
Inflammation of the uterus								5	5
Menorrhagia								1	1
Leucorrhœa								31	31
DISEASES OF THE ORGANS OF LOCOMOTION	1	33	31	2	1			133	167
Necrosis		3	1	1	1				3
Inflammation of joints—									
Acute synovitis		3	3					8	11
Chronic synovitis		1	1						1
Myalgia	1	24	24	1				121	146
Lumbago								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDING JUNE 30, 1900—Continued.

OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE ORGANS OF LOCOMOTION—Continued.									
Inflammation of tendons								1	1
Thecal abscess		2	2						2
Inflamation of bursæ—acute								1	1
Bursal tumor								1	1
DISEASES OF THE CONNECTIVE TISSUE	1	25	18	6	1		1	44	70
Inflammation		12	9	2			1	22	34
Abscess	1	13	9	4	1			22	36
DISEASES OF THE SKIN	3	24	18	7			2	114	141
Urticaria								4	4
Prickly heat								2	2
Eczema		2	2					28	30
Impetigo								2	2
Prurigro		1	1						1
Psoriasis								6	6
Herpes								9	9
Dermatitis herpetiformis		1	1						1
Acne								3	3
Sycosis								3	3
Ichthyosis								1	1
Area								1	1
Chloasma								1	1
Ulcer	3	19	14	7			1	35	57
Boil		1					1	18	19
Onychia								1	1
Injuries		**5**	**5**					**8**	**13**
GENERAL INJURIES:									
Effects of heat—Burns and scalds		5	5					8	13
LOCAL INJURIES	5	133	98	35		1	4	269	407
Contusion of muscles								2	2
Burn or scald of skin		1	1					6	7
Frostbite		5	3	1			1	3	8
Contusion of scalp								1	1
Wound of scalp		7	2	5					7
With injury to the aponeurosis		3	1	2				9	12
Contusion of skull		1	1						1
Fracture of the vault of skull		1	1						1
Wound of skull		1		1					1
Contusion of face								2	2
Wound of face and mouth		2	2					4	6
Fracture of facial bones		1	1					2	3
Contusion of eyelid								1	1
Wound of conjunctiva								1	1
Foreign bodies in the conjunctiva or cornea								6	6
Foreign body in the food passages								1	1
Contusion of chest		4	4					6	10
Fracture of ribs	1	2	2	1				4	7
Wound of parietes of chest		1	1						1
Contusion of back		3	3					6	9
Sprain of back		6	5	1				14	20
Wound of back		3	1	2				2	5
Contusion of abdomen		1					1		1
Wound of parietes of abdomen								1	1
Contusion of upper extremities		7	4	3				44	51
Sprain of shoulder		1		1				2	3
Sprain of elbow								2	2
Sprain of wrist								14	14

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
LOCAL DISEASES—Continued.									
Sprain of fingers								1	1
Wound of upper extremities		20	13	6			1	47	67
Fracture of bones of forearm—Ulna		1	1						1
Dislocation of humerus		1	1					1	2
Contusion of lower extremities	1	23	18	5			1	32	56
Sprain of hip		2	1	1				2	4
Sprain of knee		3	1	2				6	9
Sprain of ankle	1	11	11	1				24	36
Sprain of foot								1	1
Wound of lower extremities		17	14	2		1		21	38
Fracture of femur		1	1						1
Fracture of patella		1	1						1
Fracture of tibia	1	1	2						2
Fracture of fibula	1		1						1
Fracture of tibia and fibula		2	1	1					2
Fracture of bones of foot—Of the phalanges of the toes								1	1

MISSISSIPPI.

TOTAL CASES	**72**	**1,515**	**1,033**	**422**	**20**	**55**	**57**	**3,587**	**5,174**
General Diseases	**41**	**862**	**608**	**230**	**9**	**24**	**32**	**2,064**	**2,967**
Smallpox		5	4		1			2	7
Cowpox								180	180
Measles		1	1						1
Influenza		27	27					29	56
Mumps		3	3					2	5
Enteric fever	1	12	8			4	1		13
Dysentery		25	20	2		1	2	17	42
Malarial fever:									
Intermittent	13	418	385	31	2	6	7	672	1,103
Remittent	3	51	50	4				46	100
Erysipelas, phlegmonous		1	1						1
Tubercle	10	54	15	26	3	11	9	29	93
Syphilis:									
Primary		3		3				46	49
Secondary	8	107		106		1	8	341	456
Gonorrhea		40	30	8	2			326	375
Diseases dependent on anmial parasites:									
Tænia solium	1		1						1
Phthirius inguinalis								1	1
Scarcoptes scabiei		1	1					1	2
Effects of vegetable poison—opium		1	1						1
Effects of heat		1	1						1
Alcoholism	1	12	11	1		1		11	24
Rheumatic fever		14	7	7				2	16
Rheumatism	4	64	31	31	1		5	295	363
Gout		2	2						2
Osteoarthritis		1	1						1
New growth, nonmalignant:									
Lipoma		2	2						2
Fibroma		1	1						1
Papilloma		2		2				1	3
New growth, malignant:									
Sarcoma		1		1					1
Carcinoma		1		1				2	3
Squamous carcinoma		2	2					1	3

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MISSISSIPPI—Continued.

Diseases..	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
Anæmia	......	1	......	1	......	....	......	8	9
Diabetes mellitus	......	1	......	1	......	....	......	5	6
Debility	......	8	3	5	......	....	......	45	53
DISEASES OF THE NERVOUS SYSTEM	2	20	8	11	2	1	......	60	82
Of the nerves—									
Inflammation—Neuritis	......	3	2	1	......	....	......	7	10
Of the spinal cord and membranes—									
Cord—									
Degeneration—Of posterior columns	......	1	1	......	......	....	......	....	1
Functional nervous disorders with other diseases of undetermined nature—									
Paralysis—Hemiplegia	1	2	......	1	1	1	......	....	3
Epilepsy	1	1	......	2	......	....	......	1	3
Vertigo	......	1	1	......	......	....	......	....	1
Headache	......	......	......	......	......	....	......	3	3
Neuralgia	......	9	4	5	......	....	......	47	56
Hysteria	......	1	......	1	......	....	......	....	1
Nervous weakness	......	1	......	1	......	....	......	2	3
Mental diseases—Mania	......	1	......	......	1	....	......	....	1
DISEASES OF THE EYE	1	12	7	4	2	....	......	29	42
Conjunctivitis	......	1	1	......	......	....	......	15	16
Conjunctivitis, catarrhal	......	1	1	......	......	....	......	2	3
Acute	1	4	4	......	1	....	......	7	12
Keratitis	......	2	......	2	......	....	......	1	3
Ulceration of cornea	......	1	......	1	......	....	......	1	2
Acquired deformities of cornea	......	1	......	......	1	....	......	....	1
Iritis	......	......	......	......	......	....	......	3	3
Lenticular cataract	......	2	1	1	......	....	......	....	2
DISEASES OF THE EAR	......	4	......	4	......	....	......	7	11
Imflammation of the external meatus—acute	......	......	......	......	......	....	......	1	1
Accumulation in external meatus of wax or epidermis	......	......	......	......	......	....	......	1	1
Inflammation of the middle ear	......	2	......	2	......	....	......	....	2
Nonsuppurative	......	......	......	......	......	....	......	1	1
Suppurative	......	2	......	2	......	....	......	3	5
Ulceration of membrana tympani	......	......	......	......	......	....	......	1	1
DISEASES OF THE NOSE	......	......	......	......	......	....	......	23	23
Inflammation of soft parts	......	......	......	......	......	....	......	23	23
Diseases of septum	......	......	......	......	......	....	......	1	1
Epistaxis	......	......	......	......	......	....	......	1	1
DISEASES OF THE CIRCULATORY SYSTEM	......	42	1	30	......	7	4	43	85
Valvular disease—									
Aortic	......	7	......	3	......	3	1	3	10
Mitral	......	22	......	16	......	3	3	21	43
Aortic and mitral	......	2	......	1	......	1	......	1	3
Hypertrophy of heart	......	......	......	......	......	....	......	1	1
Dilatation of heart	......	1	......	1	......	....	......	1	2
Arteritis—arterio-capillary fibrosis	......	2	......	2	......	....	......	....	2
Aneurysm of arteries	......	5	......	5	......	....	......	2	7
Phlebitis	......	1	1	......	......	....	......	....	1
Varix	......	2	......	2	......	....	......	14	16
DISEASES OF THE RESPIRATORY SYSTEM	......	83	55	16	1	10	1	228	311
Inflammation of mucous membrane of larynx—catarrhal, acute	......	3	3	......	......	....	......	6	9

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE RESPIRATORY SYSTEM—Continued.									
Bronchitis—catarrhal—									
Acute		26	19	7				199	225
Chronic		2	1	1				7	9
Spasmodic asthma		4		4				5	9
Pneumonia		36	27			9			36
Broncho-pneumonia		1		1					1
Phthisis—									
Acute		1		1					1
Tubercular								1	1
Pleurisy—acute		8	5	1	1		1	10	18
Emphysema		1		1					1
Empyema		1				1			1
DISEASES OF THE DIGESTIVE SYSTEM	3	109	83	23	1	2	3	497	609
Inflammation of the mouth								5	5
Caries of dentine and cementum								13	13
Necrosis of cementum								1	1
Suppuration of alveoli		1	1						1
Toothache								8	8
Sore throat		1	1					7	8
Inflammation of tonsils—									
Follicular		6	6					26	32
Suppuration		2	2					3	5
Elongated uvula								1	1
Inflammation of salivary glands		1	1					2	3
Salivation		1		1				2	3
Inflammation of the pharynx		1	1						1
Catarrhal								22	22
Follicular								2	2
Post-pharyngeal abscess		2	2						2
Ulceration of pharynx								1	1
Inflammation of the stomach		12	10	1			1		12
Catarrhal		2		2				26	28
Ulceration of the stomach		1		1					1
Dilatation of the stomach		1		1					1
Indigestion		2	1				1	63	65
Pyrosis								2	2
Inflammation of the intestines—									
Enteritis	1	17	15	3				16	34
Typhlitis		1		1					1
Colitis								1	1
Catarrhal			3	3					3
Hernia		5	4			1		72	77
Obstruction of the intestines		1	1						1
Constipation		3	3					108	111
Colic		2	2					7	9
Diarrhea		23	20	2	1			75	98
Periproctitis—									
Abscess								1	1
Fistula in ano	1	2	1	2					3
Prolapse of the rectum		2	1	1					2
Piles—									
Internal	1	1	2						2
External		2	1	1				18	20
Mixed								1	1
Pruritus ani								1	1
Inflammation of the liver—									
Acute		1		1				1	2
Acute suppuration		1				1			1
Acute abscess		2		1			1		2
Chronic								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE DIGESTIVE SYSTEM—Con.									
Hyperemia of the liver		2	2						2
Jaundice		3		3				9	12
Inflammation of hepatic ducts and gall bladder		3	2	1					3
Calculi		1		1				2	3
Inflammation of the peritoneum		1	1						1
DISEASES OF THE LYMPHATIC SYSTEM		37	30	4			3	30	67
Inflammation of lymph glands		28	22	4			2	30	58
Suppuration		9	8				1		9
DISEASES OF THE URINARY SYSTEM		27	3	17	1	5	1	45	72
Acute nephritis		4	1	1		2			4
Bright's disease		19	1	14	1	3		8	27
Calculus in kidney		1		1				2	3
Inflammation of bladder—									
Acute		2	1				1	20	22
Subacute								2	2
Chronic		1		1				2	3
Irritability of bladder								7	7
Retention of urine								1	1
Incontinence of urine								3	3
DISEASES OF THE GENERATIVE SYSTEM	2	70	38	32			2	118	190
Stricture of urethra, organic	1	11	8	4				7	19
Urethral fistula		1		1					1
Hypertrophy of the prostate		1		1				2	3
Posthitis								1	1
Phimosis	1	4	4	1				6	11
Paraphimosis		1	1					1	2
Inflammation of the glans of penis		3		3				1	4
Ulcer of penis		12	7	4			1	2	14
Soft chancre		26	12	13			1	74	100
Pruritus of the scrotum								2	2
Hydrocele of the spermatic cord								1	1
Varicocele								5	5
Inflammation of the testicle—									
Acute orchitis		5	4	1				5	10
Chronic orchitis		2		2				2	4
Epididymitis		4	2	2				6	10
Impotence								3	3
DISEASES OF THE ORGANS OF LOCOMOTION	2	18	10	7	1	1	1	55	75
Inflammation of the bones—									
Osteitis		1	1						1
Periostitis		3	1	1	1			1	4
Necrosis	1	1		2					2
Inflammation of joints—									
Acute synovitis		4	2	1			1	1	5
Chronic synovitis								2	2
Psoas, lumbar, and other abscesses		1				1			1
Posterior curvature of spine, angular		1		1					1
Myalgia	1	6	5	2				49	56
Lumbago		1	1					1	2
Adhesion of tendons								1	1
DISEASES OF THE CONNECTIVE TISSUE	1	27	23	2	2		1	21	49
Inflammation		15	11	2	1		1	17	32
Abscess	1	12	12		1			4	17
DISEASES OF THE SKIN	9	39	34	10		1	3	106	154
Erythema								2	2
Urticaria	1		1					8	9

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE SKIN—Continued.									
Eczema								20	20
Pityriasis rubra								1	1
Herpes		1	1					5	6
Zona								2	2
Pemphigus								1	1
Dermatitis herpetiformis		1	1						1
Acne								1	1
Sycosis								1	1
Ringworm								1	1
Chilblain								1	1
Ulcer	8	26	23	7		1	3	21	55
Boil		4	2	2				7	11
Carbuncle		4	4					21	25
Whitlow		2	1	1				2	4
Onychia		1	1					8	9
Cheloid								3	3
Pruritus								1	1
Injuries	**1**	**6**	**7**					**17**	**24**
GENERAL INJURIES:									
Effects of heat—									
Burns and scalds	1	4	5					17	22
Heat stroke		1	1						1
Effects of chemical irritants and corrosives		1	1						1
LOCAL INJURIES	10	159	126	32	1	4	6	243	412
Contusion of muscles		1	1						1
Wound of skin		2	2					2	4
Burn or scald of skin		1	1					2	3
Frostbite		9	5	4				1	10
Contusion of scalp								3	3
Wound of scalp		4	2	2				13	17
With injury to the aponeurosis		2		2				5	7
Contusion of skull		1	1						1
Concussion of brain		1	1						1
Contusion of face		1	1					5	6
Wound of face and mouth		3	3					4	7
Fracture of facial bones		3	2	1					3
Dislocation of lower jaw								1	1
Contusion of eyelid		2	2					3	5
Wound of eyelid		3	2	1				1	4
Wound of conjunctiva								1	1
Foreign bodies in the conjunctiva or cornea								3	3
Wound of eyeball		1	1						1
Contusion of neck	1		1						1
Wound of neck	1	2	3					1	4
Contusion of chest		4	4					9	13
Fracture of ribs		3		3				2	5
Wound of parietes of chest	1	2	3						3
Penetrating wound of pleura or lung		1				1			1
Contusion lung		1	1						1
Contusion of back		2	2					1	3
Sprain of back		8	8					16	24
Wound of back	1	3	2	2				2	6
Fracture of spine		1				1			1
Concussion of cord		1	1						1
Contusion of abdomen		2	1				1	5	7
Wound of parietes of abdomen		4	3	1				3	7
Contusion of the perinæum, scrotum, or penis		1	1					1	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
LOCAL INJURIES—Continued.									
Wound of the male urethra, perinæum, scrotum, testis, or penis		1					1		1
Contusion of upper extremities		3	3					37	40
Sprain of shoulder								2	2
Sprain of wrist		1	1					4	5
Sprain of hand								1	1
Sprain of fingers								1	1
Wound of upper extremities		13	9	1	1	1	1	39	52
Fracture of clavicle		1		1					1
Fracture of scapula		1	1						1
Fracture of humerus		2	2						2
Fracture of bones of forearm—									
Radius	1		1					1	2
Ulna		1		1					1
Both bones		3	3						3
Fracture of carpus, metacarpus, or phalanges		6	2	4				3	9
Dislocation of humerus		6	5				1		6
Dislocation of radius and ulna		2	1	1					2
Dislocation of phalanges of thumb		1	1						1
Contusion of lower extremities	1	15	13	3				41	57
Sprain of hip								3	3
Sprain of knee		1		1				2	3
Sprain of ankle		6	6					13	19
Sprain of foot		2	2					1	3
Wound of lower extremities	2	17	14	3		1	1	11	30
Fracture of femur	1		1						1
Fracture of patella		1	1						1
Fracture of tibia		1	1						1
Fracture of fibula		1	1						1
Fracture of tibia and fibula		3	2				1		3
Fracture of bones of foot—									
Of the tarsus		1	1						1
Of the metatarsus		1		1					1
Dislocation of foot	1		1						1

GREAT LAKES.

TOTAL CASES	**119**	**2,156**	**1,340**	**711**	**42**	**55**	**127**	**9,808**	**12,083**
General diseases	**43**	**785**	**498**	**254**	**14**	**18**	**44**	**4,092**	**4,920**
Smallpox		4	4						4
Cowpox	1			1				621	622
Chicken pox		1	1						1
Measles		13	12				1		13
Scarlet fever		4	3				1		4
Influenza	1	60	54	5	1		1	151	212
Mumps		3	3					2	5
Diphtheria		1	1						1
Simple continued fever		6	3	2	1			22	28
Enteric fever	9	100	76	17	1	6	9	3	112
Choleraic diarrhea		10	9	1				12	22
Epidemic diarrhea								1	1
Dysentery	1	18	15	2			2	20	39
Malarial fever:									
Intermittent	5	60	52	9	2		2	220	285
Remittent	1	9	8	2				5	15
Phagedæna	1		1						1
Sloughing phagedæna		1	1					2	3

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
Erysipelas	1	8	8	1				7	16
Tubercle	8	36	8	20	4	7	5	44	88
Syphilis:									
Primary	1	13		14				89	103
Secondary	6	75	3	72		2	4	752	833
Gonorrhea	3	68	42	42			1	1,235	1,306
Diseases dependent on animal parasites:									
Tænia solium		8	4	4				7	15
Tænia mediocanellata		3	2	1				3	6
Ascaris lumbricoides								2	2
Oxyuris vermicularis								2	2
Phthirius inguinalis								2	2
Sarcoptes scabiei								9	9
Tinen circinata		1	4					4	5
Tinea barbal								1	1
Tinea tonsurans								1	1
Diseases dependent on vegetable parasites:									
Trichophyton tonsurans		1					1	19	20
Microsporon furfur								2	2
Melanolespes picipes								1	1
Culex anxifer								1	1
Bee sting								1	1
Effects of vegetable poisons:									
Morphine		1	1					2	3
Opium		2	1		1				2
Tobacco		1		1					1
Copaiba								1	1
Fungi								1	1
Rhus								3	3
Effects of inorganic poisons:									
Lead		2	1				1	1	3
Mercury		1	1						1
Morphine		1	1					2	3
Effects of the presence of foreign bodies:								2	2
Effects of heat	1	3	2	1		1		6	10
Effects of cold		1	1						1
Alcoholism	1	63	54	8		1	1	28	92
Rheumatic fever	1	36	18	14			5	4	41
Rheumatism	2	140	95	35	2		10	591	733
Osteoarthritis								3	3
Cyst		3	3					3	6
Sebaceous		4	2	2				4	8
Chalazion								7	7
New growth; nonmalignant:									
Lipoma		1	1					1	2
Papilloma		4	1	3				26	30
Pterigium		1	1					3	4
New growth, malignant:									
Sarcoma		2		1	1				2
Carcinoma		4	1	2		1			4
Squamous carcinoma								1	1
Anæmia		3		3				9	12
Purpura								1	1
Leucocythemia		1		1					1
Hæmophilia		1	1						1
Diabetes mellitus		1		1				2	3
Diabetes insipidus								6	6
Chlorosis								2	2
Debility		7	3	4				144	151
DISEASES OF THE NERVOUS SYSTEM	10	50	25	22		2	11	212	272
Of the nerves—									
Inflammation—									
Neuritis		5	3				2	15	20
Multiple neuritis	1	2	3						3

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE NERVOUS SYSTEM—Con.									
Of the spinal cord and membranes—									
Cord—									
Degeneration—									
Of lateral columns	1	1		2					2
Of posterior columns	3	4		2			5	1	8
Of the brain and its membranes—									
Membranes—									
Inflammation		1	1						1
Of pia mater and arachnoid		1	1						1
Inflammation spinal cord		1		1					1
Hemorrhage	1	2		1		1	1		3
Of the brain and its membranes—									
Brain—									
Hemorrhage		1					1		1
Hyperæmia		1	1					3	4
Functional nervous disorders with other diseases of undetermined nature—									
Apoplexy		1		1					1
Paraplegia		1		1				2	3
Hemiplegia	1	3		2		1	1	3	7
Local paralysis								7	7
Paralysis agitans								1	1
Spasm		1	1					2	3
Tremor		1		1					1
Epilepsy		5	1	3			1	11	16
Vertigo								6	6
Headache		4	3	1				43	47
Anesthesia								7	7
Neuralgia	3	11	11	3				81	95
Nervous weakness		3		3				30	33
Mental diseases—									
Mental stupor		1		1					1
DISEASES OF THE EYE	1	15	7	6	3			113	129
Conjunctivitis		2	1	1				27	29
Conjunctivitis, catarrhal		1	1					4	5
Acute		2	2					59	61
Purulent								1	1
Optic neuritis		1			1			1	2
Keratitis								2	2
Ulceration of cornea	1	1	1	1					2
Hyelitis								1	1
Iritis		2		2				4	6
Choroiditis								1	1
Œdema of conjunctiva		1		1					1
Atrophy and degeneration of optic nerve or papilla		1			1				1
Lenticular cataract		2	1		1				2
Ametropia								1	1
Inflammation lachrymal gland								1	1
Stricture and obliteration puncta and canalicula								1	1
Obstruction of nasal duct								2	2
Blepharitis marginalis								2	2
Abscess lachrymal sac		1		1					1
Sty								4	4
Trichiasis								2	2
Entropion		1	1						1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
Diseases of the Ear	......	2	2	......	......	....	......	39	41
Inflammation of the external meatus—									
Acute	......	......	......	......	......	...	......	1	1
Chronic	......	......	......	......	......	....	......	2	2
Abscess	......	......	......	......	......	....	......	1	1
Accumulation in external meatus of wax or epidermis	......	......	......	......	......	....	......	17	17
Inflammation of the middle ear	......	......	......	......	......	....	......	3	3
Suppurative	......	1	1	......	......	....	......	10	11
Ulceration of membrana tympani	......	1	1	......	......	....	......	1	2
Tinnitus	......	......	......	......	......	....	......	1	1
Deafness	......	......	......	......	......	....	......	3	3
Diseases of the Nose	......	3	2	1	......	....	......	57	60
Inflammation of soft parts	......	2	2	......	......	....	......	56	58
Inflammation of framework	......	1	......	1	......	....	......	1	2
Diseases of septum	......	......	......	......	......	....	......	7	7
Epistaxis	......	......	......	......	......	....	......	1	1
Inflammation of the naso-pharynx	......	......	......	......	......	....	......	6	6
Diseases of the Circulatory System	2	58	6	38	4	5	7	107	167
Pericarditis	......	1	......	......	1	....	......	....	1
Endocarditis	......	1	......	1	......	....	......	....	1
Valvular disease—									
Aortic	1	11	1	7	......	1	3	9	21
Mitral	1	27	......	21	1	3	3	40	68
Aortic and mitral	......	......	......	......	......	....	......	2	2
Degeneration of heart	......	......	......	......	......	....	......	1	1
Hypertrophy of heart	......	1	......	1	......	....	......	....	1
Angina pectoris	......	......	......	......	......	....	......	4	4
Disordered action of the heart—									
Abnormal slowness	......	......	......	......	......	....	......	1	1
Abnormal rapidity	......	3	......	2	1	....	......	21	24
Irregularity	......	4	......	3	1	....	......	7	11
Arteritis	......	1	......	1	......	....	......	....	1
Degeneration of arteries	......	1	......	......	......	1	......	....	1
Obstruction of arteries—Embolism	......	2	2	......	......	....	......	....	2
Phlebitis	......	1	......	1	......	....	......	1	2
Varix	......	5	3	1	......	....	1	21	26
Diseases of the Respiratory System	6	157	77	61	6	12	7	918	1,081
Hay fever	......	......	......	......	......	....	......	1	1
Inflammation of mucous membrane of larynx	......	......	......	......	......	....	......	4	4
Catarrhal—									
Acute	......	5	4	1	......	....	......	7	12
Chronic	......	......	......	......	......	....	......	5	5
Bronchitis—									
Catarrhal—									
Acute	1	49	40	7	2	....	1	668	718
Chronic	......	18	3	11	1	2	1	101	119
Membranous	......	......	......	......	......	....	......	2	2
Spasmodic asthma	......	11	4	6	......	....	1	19	30
Congestion of lung	......	1	1	......	......	....	......	24	25
Hemorrhage of lung—Hæmoptysis	......	1	......	......	1	....	......	2	3
Pneumonia	3	20	15	2	......	3	3	1	24
Broncho-pneumonia	......	......	......	......	......	....	......	2	2
Chronic interstitial inflammation	......	3	1	2	......	....	......	1	4
Phthisis—									
Acute	......	6	......	6	......	....	......	4	10
Chronic	......	2	......	2	......	....	......	4	6
Tubercular	2	19	......	13	1	6	1	23	44

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE RESPIRATORY SYSTEM—Continued.									
Pleurisy—									
Acute		18	9	8	1			38	56
Chronic		1		1				12	13
Empyema		1				1			1
Emphysema		2		2					2
DISEASES OF THE DIGESTIVE SYSTEM	4	225	167	49	2	3	8	1,521	1,750
Inflammation of the lips								5	5
Inflammation of the mouth								11	11
Ulceration of the mouth								17	17
Caries of dentine and cementum		1	1					13	15
Inflammation of dental periosteum								5	4
Abscess of dental periosteum		1	1					3	4
Suppuration of alveoli		1	1					1	2
Ulceration of gums and alveoli								1	1
Caries of the alveoli								8	8
Inflammation of the tongue								1	1
Ulceration of the tongue								7	7
Sore throat		5	5					47	52
Inflammation of tonsils		3	2	1				10	13
Follicular		15	13	2				40	55
Suppuration		8	8					21	29
Hypertrophy of tonsils		1	1					3	4
Elongated uvula								1	1
Salivary calculus								1	1
Inflammation of the pharynx								7	7
Catarrhal		1	1					30	31
Granular								4	4
Follicular		1	1					47	48
Inflammation of the stomach		8	4	4				7	15
Catarrhal		15	10	3			2	191	206
Ulceration of the stomach		1	1						1
Hemorrhage of the stomach		3	2	1					3
Dilatation of the stomach	1	2		3					2
Indigestion		10	8	1			1	260	270
Pyrosis								27	27
Vomiting								2	2
Gastralgia								14	14
Loss of appetite		1	1					35	36
Inflammation of the intestines		5	5						5
Enteritis		14	11	1		1	1	18	32
Typhlitis		14	12	2				4	18
Colitis		2		1			1	1	3
Catarrhal		10	7	2			1	6	16
Ulceration of the intestines		2	1	1					2
Fæcal accumulation		2	2					5	7
Hernia		7	6	1				121	128
Intestinal dyspepsia		4	4					19	23
Constipation		3	2	1				154	157
Colic		14	12	2				20	34
Diarrhea	1	26	19	5	1		2	229	256
Inflammation of the rectum		1	1					3	4
Periproctitis		2	1	1				2	4
Abscess	1	3	4					2	6
Fissure of the anus								1	1
Fistula in ano		7	4	3				7	14
Prolapse of the rectum		1	1					1	2
Stricture of the rectum		1	1						1
Piles—									
Internal		3	2		1			15	18
External		5	4	1				32	37
Mixed	1	3	2	2				14	18

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE DIGESTIVE SYSTEM—Con.									
Inflammation of the liver—									
Acute		2	1	1				16	18
Chronic		2		2					2
Hyperæmia of the liver		4	1	2		1		8	12
Atrophy of the liver		1		1					1
Hypertrophy of the liver		2		2					2
Jaundice		2		2				4	6
Inflammation of hepatic ducts and gall bladder		3	3					5	8
Calculi		2		1		1		3	5
Inflammation of the peritoneum		1	1					1	2
Dropsy								1	1
Accumulation of bile								10	10
DISEASES OF THE LYMPHATIC SYSTEM	1	27	16	10			2	67	95
Congestion of spleen								3	3
Inflammation of lymph glands	1	17	9	7			2	52	70
Suppuration		7	5	2				6	13
Hypertrophy of lymph glands		2	2					3	5
Inflammation of lymphatics								3	3
Lymph fistula		1		1					1
DISEASES OF THE THYROID BODY		1		1				4	5
Goitre		1		1				4	5
DISEASES OF THE URINARY SYSTEM	1	40	10	20	1	7	3	163	204
Acute nephritis		5	2	2			1	20	25
Bright's disease	1	4		4		1		6	11
Chronic nephritis		13		8		5		12	25
Pyelitis								1	1
Congestion of kidney								3	3
Calculus in kidney		1			1			2	3
Calculus in ureter								4	4
Hæmaturia		3	1	2				1	4
Lithuria								2	2
Phosphaturia								1	1
Inflammation of bladder								18	18
Acute		5	2	2			1	37	42
Subacute		2	1				1	3	5
Chronic		7	4	2		1		20	27
Calculus of bladder								2	2
Irritability of bladder								25	25
Retention of urine								2	2
Incontinence of urine								4	4
DISEASES OF THE GENERATIVE SYSTEM	9	115	72	45	2	1	4	496	620
Urethritis								42	42
Gleet								3	3
Stricture of urethra—organic	1	29	16	12			2	49	79
Urethral fistula		1		1					1
Inflammation of the prostate—acute		1		1				2	3
Prostatarrhœa								12	12
Hypertrophy of the prostate	1	2		2		1		8	11
Posthitis								1	1
Phimosis	1	9	7	3				3	13
Paraphimosis		1	1					1	2
Inflammation of the penis								2	2
Of the glands								11	11
Ulcer of penis		5	3	2				16	21
Œdema of penis		1		1					1
Soft chancre	3	17	11	8	1			224	244
Chordee								1	1
Pruritus of the scrotum		1		1				1	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GREAT LAKES—Continued.

Diseases.	Number of cases.								
		Discharged.							
	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
DISEASES OF THE GENERATIVE SYSTEM—Continned.									
Inflammation of the spermatic cord								5	5
Hydrocele of the spermatic cord	1	1	1	1				9	11
Hæmatocele of the spermatic cord		1	1					2	3
Varicocele		8	3	3	1		1	32	40
Hydrocele of tunica vaginalis		7	6	1				6	13
Inflammation of the testicle								8	8
Acute orchitis	1	23	19	4			1	7	30
Chronic orchitis		1	1					6	7
Epididymitis		5	3	2				8	13
Abscess of testicle	1			1				2	3
Spermatorrhea								6	6
Impotency								4	4
Inflammation of the ovary								5	5
Inflammation of the uterus								3	3
Displacements and distortions of the uterus								4	4
Laceration cervix								1	1
Hæmatoma vulva		1		1				1	2
Ulcer of the vulva								3	3
Menorrhagia								2	2
Metrorrhagia								2	2
Leucorrhea								3	3
Hypertrophy of breast								1	1
Abortion		1		1					1
DISEASES OF THE ORGANS OF LOCOMOTION	4	69	51	19	2		1	394	467
Inflammation of the bones—									
Osteitis								1	1
Periostitis		5	3	2				3	8
Caries		1	1						1
Necrosis		5	2	1	2			2	7
Hypertrophy of the bones		1		1					1
Inflammation of joints—									
Acute synovitis		10	8	2				8	18
Chronic synovitis	1	6	5	1			1	9	16
Ankylosis								1	1
Inflammation of muscles		5	4	1				9	14
Suppuration of muscles								2	2
Idiopathic muscular atrophy								2	2
Myalgia	2	21	20	3				291	314
Lumbago		7	4	3				52	59
Inflammation of tendons								1	1
Adhesion of tendons		1		1					1
Inflammation of sheaths of tendons		1	1					1	2
Thecal abscess	1	5	3	3				2	8
Ganglion								2	2
Inflammation of bursæ—									
Acute								3	3
Chronic								1	1
Bunion								2	2
Bursal cyst								2	2
Bursal tumor								1	1
Flat foot		1		1					1
DISEASES OF THE CONNECTIVE TISSUE	6	56	45	12			5	125	187
Inflammation	3	14	15				2	52	69
Abscess	3	39	28	11			3	68	110
Œdema		3	2	1				5	8
DISEASES OF THE SKIN	6	64	42	25			3	503	573
Erythema		1	1					2	3
Urticaria								17	17

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GREAT LAKES—Continued.

Diseases.	Number of cases.								
			Discharged.						
	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
DISEASES OF THE SKIN—Continued.									
Prickly heat								14	14
Eczema		8	3	4			1	122	130
Impetigo		2	2					12	14
Pityriasis rubra								1	1
Prurigro								1	1
Lichen								1	1
Psoriasis		2		2				27	29
Herpes								39	39
Pona		2	1	1				7	9
Pemphigus								1	1
Dermatitis herpetiformis		2	2					2	4
Acne								26	26
Sycosis		1		1				14	15
Ephelis								1	1
Chloasma								1	1
Area								3	3
Ulcer	4	23	13	12			2	85	112
Boil		9	7	2				76	85
Carbuncle	1	6	5	2				14	21
Whitlow	1	6	7					17	24
Onychia		2	1	1				7	9
Tylosis								1	1
Corn								4	4
Wen								1	1
Hyperidrosis								1	1
Pruritus								6	6
Injuries	**1**	**42**	**27**	**10**	**1**	**4**	**1**	**51**	**94**
GENERAL INJURIES:									
Effects of heat—									
Burns and scalds	1	18	14	4	1			45	64
Heat stroke		9	7	1			1	3	12
Multiple injury		15	6	5		4			15
Suffocation								1	1
Shock								2	2
LOCAL INJURIES	25	447	293	138	7	3	31	939	1,411
Contusion of muscles	1	2	2	1				1	4
Strain of muscles		3	2	1				11	14
Rupture of muscles								1	1
Strain of tendons		1	1					2	3
Contusion of skin								1	1
Abrasion of skin		2		2				5	7
Wound of skin	1			1				9	10
Burn or scald of skin		3	2	1				13	16
Frostbite		2	2					1	3
Burn or scald of mucous membrane		1	1					5	6
Contusion of scalp		4	4					2	6
Wound of scalp		3	3					18	21
With injury to the aponeurosis		8	4	3	1			15	23
With injury to the pericranium		1	1						1
With injury to the bone		1		1					1
Contusion of skull		1		1				1	2
Fracture of the vault of skull		1	1						1
Fracture of the base of skull		1				1			1
Concussion of brain	1	5	5				1		6
Contusion of face		4	4					8	12
Wound of face and mouth		15	11	3	1			27	42
Fracture of facial bones		6	4	1	1			2	8
Dislocation of lower jaw								1	1
Contusion of eyelid		2	2					2	4
Wound of eyelid		2	1	1				3	5

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
LOCAL INJURIES—Continued.									
Contusion of eyeball		2		1	1			1	3
Foreign bodies in the conjunctiva or cornea								31	31
Wound of eyeball		1	1						1
Contusion of pinna		1		1				1	2
Wound of pinna		2		2				4	6
Foreign body in external meatus								1	1
Wound of neck		1	1					1	2
Foreign body in the food passages		1	1						1
Contusion of chest	1	9	8	2				32	42
Dislocation of costal cartilages								2	2
Fracture of ribs	3	24	12	12			3	14	41
Wound of parietes of chest								1	1
Contusion of lung without wound		1		1					1
Contusion of back	1	22	17	5			1	24	47
Sprain of back		21	16	5				50	71
Wound of back	1	1							1
Fracture of spine		3	1			1	1		3
Contusion of abdomen		3	2	1				2	5
Wound of parietes of abdomen		1	1					3	4
Contusion of the pelvis		2		2				2	4
Wound of the male urethra, perineum, scrotum, testis, or penis								8	8
Wound of rectum								1	1
Fracture or dislocation of pelvic bones		1		1					1
Contusion of testicle		1		1				1	2
Contusion of upper extremities	2	22	15	7			2	94	118
Sprain of shoulder								13	13
Sprain of elbow		1		1				9	10
Sprain of wrist								27	27
Sprain of hand								6	6
Sprain of thumb								2	2
Sprain of fingers								1	1
Wound of upper extremities	1	41	26	14			2	182	224
Fracture of clavicle		9	5	2	1		1		9
Fracture of scapula		1		1				2	3
Fracture of humerus	2	2	2	2				1	5
Fracture of bones of forearm—									
Radius		6	3	2	1			3	9
Ulna		4	2	2				1	5
Both bones		2	1	1					2
Fracture of carpus, metacarpus, or phalanges		9	3	5			1	18	27
Dislocation of clavicle		1		1				1	2
Dislocation of humerus		5	4	1				1	6
Dislocation of radius and ulna								1	1
Dislocation of phalanges of thumb								1	1
Dislocation of phalanges of fingers								2	2
Contusion of lower extremities	3	62	39	20			6	133	198
Sprain of hip	1	1	1	1				1	3
Sprain of knee		7	4	3				9	16
Sprain of ankle	4	34	29	6			3	42	80
Sprain of foot		3	2				1	3	6
Wound of lower extremities	1	21	13	5		1	3	74	96
Fracture of femur	2	6	4	3			1		8
Fracture of patella	1	6	5	2				1	8
Fracture of tibia		5	3	2				2	7
Fracture of fibula		8	7	1					8
Fracture of tibia and fibula		16	9	2	1		4		16
Fracture of bones of foot—									
Of the tarsus		2	1	1					2
Of the metatarsus		2		1			1		2
Of the phalanges of the toes		2		2				2	4

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
LOCAL INJURIES—Continued.									
Dislocation of metatarsus and phalanges		2	2						2
Malingerers		2	2						2

PACIFIC.

Diseases.	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
TOTAL CASES	**100**	**1,514**	**798**	**547**	**59**	**61**	**149**	**4,085**	**5,699**
General Diseases	**41**	**534**	**224**	**227**	**19**	**31**	**74**	**1,459**	**2,034**
Smallpox								1	1
Cowpox		1	1					2	3
Measles		5	5						5
Dengue		1	1						1
Influenza		13	10	3				60	73
Mumps		3	3					5	8
Diphtheria		1	1						1
Simple continued fever		1	1					1	2
Enteric fever	1	40	30	3	1	5	2	3	44
Choleraic diarrhea								3	3
Dysentery	1	13	11	2		1		18	32
Beriberi		9		9					9
Malarial fever:									
Intermittent	1	17	14	2	1		1	27	45
Remittent		2	2					3	5
Erysipelas		6	5	1					6
Pyæmia								1	1
Septicæmia		1					1		1
Tubercle	15	139	7	65	6	22	54	75	229
Syphilis:									
Primary		4	2	2				47	51
Secondary	5	65	1	61	3	1	4	339	409
Gonorrhea	8	100	57	44	1		6	554	662
Diseases dependent on animal parasites:									
Tænia solium		1	1						1
Pediculis vestimenti								1	1
Phthirius inguinalis								1	1
Sarcoptes scabiei								4	4
Tinea circinnata								6	6
Diseases dependent on vegetable parasites—trichophyton tonsurans								1	1
Effects of vegetable poisons:									
Opium		1			1				1
Rhus								2	2
Effects of inorganic poisons:									
Lead		1		1					1
Mercury								1	1
Effects of chemical agents								1	1
Scurvy		1	1					3	4
Alcoholism		20	10	6	3		1	36	56
Rheumatic fever	1	17	10	5			3	4	22
Rheumatism	6	56	42	18	1		1	209	271
Gout	2	1	1	1	1				3
Osteoarthritis		2		1			1		2
Cyst, sebaceous		2	2						2
New growth, nonmalignant:									
Lipoma		1	1						1
Fibroma		1			1				1
Osteoma								1	1
Papilloma								17	17

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
New growth, nonmalignant—Continued.									
Pterygium								1	1
Venous								1	1
New growth, malignant:									
Sarcoma		2	1			1			2
Squamous carcinoma		1				1			1
Anemia		1	1					3	4
Leucythemia		1	1						1
Diabetes mellitus		1		1				2	3
Diabetes insipidus	1	1	1	1					2
Debility		2	1	1				26	28
DISEASES OF THE NERVOUS SYSTEM	4	38	9	17	4	0	12	111	153
Of the nerves—									
Inflammation—Neuritis		2	1				1	5	7
Of the spinal cord and membranes—Cord—									
Degeneration—									
Of anterior cornua		1					1		1
Of lateral columns	1						1		1
Of posterior columns	2	1		1			2	2	5
Of the brain and its membranes—Membranes—									
Hæmorrhage		2		2					2
Of the brain and its membranes—Brain—									
Sclerosis		1					1		1
Anemia		1		1				1	2
Functional nervous disorders with other diseases of undetermined nature—									
Paralysis—									
Hemiplegia		7		6			1		7
Local paralysis		2		1	1			4	6
Incomplete paralysis	1						1	3	4
Epilepsy		5	1	2	2			13	18
Vertigo								4	4
Headache								5	5
Neuralgia		10	5	3			2	44	54
Hiccough								1	1
Aphasia		1					1		1
Nervous weakness		1	1					25	26
Mental diseases:									
Mania		1			1				1
Melancholia		1					1	2	3
Dementia		2	1	1				2	4
DISEASES OF THE EYE	3	16	7	7	3	0	2	31	50
Conjunctivitis		1	1					8	9
Conjunctivitis, catarrhal		1	1					2	3
Acute		2	1	1				4	6
Chronic		1	1						1
Granular		1	1						1
Keratitis								1	1
Ulceration of cornea		1		1				2	3
Congestion, optic disc		1			1				1
Opacity of cornea								4	4
Glaucoma	1			1					1
Iritis		1	1					4	5
Atrophy and degeneration of optic nerve or papilla	2	3		2	1		2		5
Lenticular cataract		1	1						1
Congestion, optic disc		1		1					1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE EYE—Continued.									
Amblyopia—Functional night blindness		1		1					1
Ametropia								1	1
Asthenopia								1	1
Squint		1			1				1
Blepharitis marginalis								2	2
Sty								2	2
DISEASES OF THE EAR		2	1		1			38	40
Inflammation of the external meatus—									
Acute								4	4
Chronic								3	3
Abscess		1	1					2	3
Accumulation in external meatus of wax or epidermis								7	7
Inflammation of the middle ear—									
Nonsuppurative								17	17
Suppurative								5	5
Deafness		1			1				1
DISEASES OF THE NOSE		1		1				17	18
Inflammation of soft parts		1		1				17	18
Diseases of septum		5	1	3			1	8	13
Deviations		1		1					1
Epistaxis								3	3
Inflammation of the accessory sinuses		2	1				1	2	4
Inflammation of the naso-pharynx		2		2				3	5
DISEASES OF THE CIRCULATORY SYSTEM	7	37	7	26	3	6	2	63	107
Valvular disease—									
Aortic	2	7		5		4		11	20
Mitral	2	8		9	1			14	24
Aortic and mitral	2	2		4				4	8
Inflammation muscular substance								2	2
Adherent pericardium		1				1		1	2
Hypertrophy of heart								2	2
Dilation of heart		1		1					1
Angina pectoris		1		1				1	2
Disordered action of the heart—									
Abnormal slowness								1	1
Abnormal rapidity		1		1				5	6
Aneurysm of arteries		3		1	1	1			3
Phlebitis		1		1					1
Varix	1	11	6	3	1		2	22	34
Nævus		1	1						1
DISEASES OF THE RESPIRATORY SYSTEM	3	119	71	33	1	9	8	386	508
Hay fever								2	2
Inflammation of mucous membrane of larynx—									
Catarrhal—									
Acute		3	2	1				19	22
Chronic		1		1				5	6
Membranous		1		1					1
Tracheitis catarrhal								1	1
Bronchitis—									
Catarrhal—									
Acute		30	19	7	1		3	238	268
Chronic		7	2	4			1	77	84
Membranous		1		1				1	2
Spasmodic asthma		3	1	1			1	8	11

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE RESPIRATORY SYSTEM—Continued.									
Hemorrhage of lung, hemoptysis:									
Pneumonia		39	29	2		8		7	46
Broncho-pneumonia		14	7	7				2	16
Phthisis—									
Acute		2	1	1					2
Chronic		3	2	1					3
Emphysema								1	1
Pleurisy—									
Acute	2	11	8	3			2	21	34
Chronic		1		1				3	4
Empyema	1	2		1		1	1	1	4
Adhesions of pleura		1		1					1
DISEASES OF THE DIGESTIVE SYSTEM	8	153	93	43	11	5	9	465	626
Inflammation of the mouth								1	1
Ulceration of the mouth		1		1				2	3
Caries of dentine and cementum								8	8
Inflammation of dental periosteum								3	3
Abscess of dental periosteum		3	2	1				2	5
Suppuration of alveoli		1	1					2	3
Ulceration of gums and alveoli								7	7
Caries of the alveoli								1	1
Necrosis alveoli		2		1	1				2
Inflammation of the tongue								1	1
Ulceration of the tongue								1	1
Sore throat		1		1				19	20
Inflammation of tonsils—									
Follicular		9	4	4			1	30	39
Suppuration		7	6	1				6	13
Hypertrophy of tonsils								1	1
Elongated uvula								2	2
Inflammation of salivary glands		1			1			2	3
Inflammation of the pharynx—									
Granular								16	16
Follicular								2	2
Inflammation of the stomach, catarrhal	5	15	7	9	1	1	2	86	106
Ulceration of the stomach, superficial								1	1
Dilatation of the stomach		3		3				1	4
Indigestion		2	1				1	61	63
Pyrosis								6	6
Vomiting		2	1	1					2
Gastralgia								3	3
Inflammation of the intestines—									
Enteritis		3	3					5	8
Typhlitis		9	6	1		1	1	3	12
Colitis		3	3					1	4
Catarrhal		5		4	1			20	25
Concretions								1	1
Fecal accumulation		4	4						4
Hernia	2	41	34	2	6	1		61	104
Stricture		1	1						1
Intestinal dyspepsia								2	2
Constipation		5	4	1				60	65
Colic		2	2						2
Diarrhea		2	2					8	10
Inflammation of the rectum		1		1					1
Periproctitis—abscess		3	1	1			1	3	6
Fissure of the anus		1	1					2	3
Fistula in ano	1	6	5	2				4	11
Piles—									
Internal		3	2	1				3	6
External		3	2				1	13	16
Mixed		2		2				2	4

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE DIGESTIVE SYSTEM—Con.									
Inflammation of the liver—									
Acute		4		2		2		5	9
Chronic		3	1	2				3	6
Hyperæmia of the liver		1					1		1
Jaundice								2	2
Inflammation of hepatic ducts and gall bladder		1			1				1
Calculi		1		1				1	2
Accumulation of bile		1					1	2	3
Inflammation of the peritonæum		1		1					1
DISEASES OF THE LYMPHATIC SYSTEM		20	14	4			2	45	65
Inflammation of lymph glands		7	5	2				40	47
Suppuration		13	9	2			2	5	18
DISEASES OF THE THYROID BODY		1			1			2	3
Goitre		1			1			2	3
DISEASES OF THE URINARY SYSTEM	4	14	2	8	1	6	1	38	56
Acute nephritis	1	1		1	1			4	6
Bright's disease	3	5		2		5	1	6	14
Chronic nephritis		3		3				7	10
Granular kidney		1		1				1	2
Calculus in ureter								2	2
Nephralgia		1		1					1
Hæmaturia		1	1						1
Lithuria								1	1
Inflammation of bladder—									
Acute								10	10
Subacute		1	1						1
Chronic		1				1		4	5
Incontinence of urine								3	3
DISEASES OF THE GENERATIVE SYSTEM	1	99	52	41	3	1	3	253	353
Urethritis								10	10
Gleet								3	3
Abscess of the urethra								1	1
Stricture of urethra—									
Organic		17	8	8		1		37	54
Traumatic								1	1
Spasmodic		1	1					1	2
Urethral fistula		1			1				1
Extravasation of urine		1					1		1
Inflammation of the prostate, acute		1		1					1
Prostatarrhœa								1	1
Hypertrophy of the prostate		1		1				2	3
Phimosis		2	2					2	4
Inflammation of the glans of the penis								1	1
Ulcer of penis		15	6	9				12	27
Œdema of penis								1	1
Soft chancre	1	40	26	14			1	152	193
Hydrocele of the spermatic cord		2	1				1		2
Varicocele		2	2					6	8
Hydrocele of tunica vaginalis		4	1	2	1			3	7
Inflammation of the testicle								2	2
Acute orchitis		5	1	4				6	11
Chronic orchitis		1	1					1	2
Epididymitis		6	3	2	1			4	10
Spermatorrhœa								5	5
Impotence								1	1
Inflammation of mamary gland								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

PACIFIC—Continued.

Diseases.	Number of cases.								
			Discharged.						
	Remaining under treatment from previous year.	Admitted during the year.	Recovered.	Improved.	Not improved.	Died.	Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
DISEASES OF THE ORGANS OF LOCOMOTION.	3	48	29	14	1	0	7	105	156
Inflammation of the bones—									
Osteo myelitis		1		1					1
Periostitis		1	1						1
Caries		2	2						2
Necrosis		10	5	3			2	2	12
Inflammation of joints—									
Acute synovitis		4	1	1			2	2	6
Chronic synovitis		2		2				6	8
Ankylosis	1						1		1
Dislocation of articular cartilage	1		1						1
Posterior curvature of spine, angular.	1						1		1
Inflammation of muscles								1	1
Supperation of muscles		1	1						1
Myalgia		12	8	4				57	69
Lumbago		6	3	3				28	34
Thecal abscess		1	1						1
Inflammation of bursæ—									
Acute		4	4					4	8
Chronic		1					1	3	4
Abscess of bursæ		1	1						1
Bunion		1	1					1	2
Club foot		1			1				1
Flat foot								1	1
DISEASES OF THE CONNECTIVE TISSUE	3	48	32	11	2		6	63	114
Inflammation	2	10	9	2			1	4	16
Abscess	1	38	23	9	2		5	57	96
Œdema								2	2
DISEASES OF THE SKIN	3	48	29	15	1		6	282	333
Erythema								1	1
Urticaria		1	1					5	6
Prickly heat								2	2
Eczema		8	4	2	1		1	55	63
Impetigo		1	1						1
Lichen								1	1
Psoriasis		1		1				9	10
Herpes								8	8
Zona		2	2					9	11
Pemphigus								1	1
Acne								5	5
Gutta rosea								2	2
Sycosis								2	2
Seborrhœa								1	1
Ichthyosis								1	1
Ulcer	3	16	8	6			5	76	95
Boil		6	3	3				77	83
Carbuncle		1		1				10	11
Whitlow		3	3					13	16
Onychia		3	3					2	5
Tylosis		2	1	1					2
Corn		1		1				1	2
Wen		3	3					1	4
Injuries		**25**	**18**	**5**		**2**		**14**	**39**
GENERAL INJURIES:									
Effects of heat, burns, and scalds		10	5	4		1		12	22
Effects of cold		4	4					1	5
Effects of chemical irritants and corrosives		2	2						2
Mutiple injury		8	6	1		1		1	9
Shock		1	1						1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
LOCAL INJURIES	20	306	209	92	8	1	16	705	1,031
Contusion of nerves								1	1
Rupture veins								2	2
Wound lymph gland								1	1
Contusion of muscles								1	1
Strain of muscles		5	4	1				5	10
Rupture of muscles								1	1
Strain of tendons								1	1
Burn or scald of skin		9	6	2	1			7	16
Frostbite		1	1						1
Burn or scald of mucous membrane								1	1
Contusion of scalp		1	1					1	2
Wound of scalp		7	4	3				24	31
With injury to the aponeurosis		6	5	1				8	14
Contusion of the skull		1		1					1
Concussion of brain								1	1
Contusion of face		5	4	1				4	9
Wound of face and mouth		5	4	1				32	37
Fracture of facial bones		7	4	1			2	3	10
Contusion of eyelid								1	1
Chemical injury to eye		1	1						1
Contusion of eyeball		1			1				1
Hemorrhage of conjunctiva								1	1
Foreign bodies in the conjunctiva or cornea								9	9
Wound of eyeball								2	2
Foreign body in external meatus								1	1
Contusion of neck		1		1					1
Wound of neck		2	2					2	4
Compression of chest								3	3
Contusion of chest		12	10	2				37	49
Dislocation of costal cartilages								1	1
Fracture of ribs		9	2	6			1	11	20
Wound of parieties of chest		1	1					2	3
Gunshot wound		2	1				1		2
Contusion of back		11	9	2				18	29
Sprain of back	3	6	6	3				32	41
Fracture of spine		1				1			1
Concussion of cord								1	1
Contusion of abdomen								6	6
Wound of parietes of abdomen		2	2					5	7
Contusion of the pelvis		1	1					2	3
Contusion of the perinæum, scrotum, or penis		1		1					1
Wound of the male urethra, perinæum, scrotum, testis, or penis		1			1			2	3
Contusion of testicle								1	1
Contusion of upper extremities	1	20	10	10	1			57	78
Sprain of shoulder		7		6			1	18	25
Sprain of elbow		1		1				4	5
Sprain of wrist	1	5	3	2	1			15	21
Sprain of hand								3	3
Sprain of thumb								1	1
Wound of upper extremities		31	18	13				192	223
Wound of joint, upper extremities								1	1
Fracture of clavicle		3	3						3
Fracture of scapula		2	2						2
Fracture of humerus		1		1					1
Fracture—									
Radius		4	4					1	5
Ulna		2	1	1				1	3
Fracture of carpus, metacarpus, or phalanges		6		5	1			11	17
Dislocation of humerus	1	10	11					3	14

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Discharged.					Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
		Admitted during the year.	Recovered.	Improved.	Not improved.	Died.			
LOCAL INJURIES—Continued.									
Dislocation of radius and ulna		1	1					1	2
Dislocation of phalanges of thumb								1	1
Contusion of lower extremities		26	21	4			1	71	97
Sprain of hip		1		1					1
Sprain of knee		4	3	1				16	20
Sprain of ankle	1	13	10	4				24	38
Sprain of foot								7	7
Wound of lower extremities	1	29	22	6			2	46	76
Fracture of femur	3	2	4				1		5
Fracture of cervix femoris		2	1				1		2
Fracture of patella		2		1	1				2
Fracture of tibia	3	11	6	4			4	1	15
Fracture of fibula		12	7	3			2		12
Fracture of tibia and fibula	1	10	8	3					11
Fracture of bones of foot	2		2						2
Of the metatarsus	1		1						1
Of the phalanges of the toes	1		1						1
Dislocation of patella								1	1
Dislocation of tibia	1		1						1
Dislocation of metatarus and phalanges		1	1						1
Malinges		1			1				1
QUARANTINE.									
TOTAL CASES	**1**	**61**	**33**	**18**	**0**	**8**	**3**	**53**	**115**
General diseases	**1**	**50**	**29**	**13**		**7**	**2**	**31**	**82**
Smallpox		3				1	2		3
Influenza								2	2
Enteric fever		4	2			2			4
Dysentery								1	1
Yellow fever		7	6			1			7
Beri-beri		26	13	10		3		5	31
Malarial fever:									
Intermittent	1	4	3	2				8	13
Remittent		3	3					5	8
Tubercle		1		1				1	2
Spyhilis, secondary								1	1
Gonorrhea								5	5
Childbirth		1	1						1
Effects of cold								1	1
Starvation		1	1						1
Rheumatism								2	2
Local diseases									
Diseases of the eye								1	1
Ulceration of cornea								1	1
DISEASES OF THE RESPIRATORY SYSTEM		1	1					2	3
Bronchitis—Catarrhal, acute		1	1					1	2
Spasmodic asthma								1	1
DISEASES OF THE DIGESTIVE SYSTEM		4	2	1		1		7	11
Ulceration of the lips								1	1
Inflammation of tonsils—Follicular								1	1
Inflammation of the stomach—Catarrhal		1	1						1
Indigestion								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1900—Continued.

QUARANTINE—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.				Remaining under treatment at close of year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.	Died.			
DISEASES OF THE DIGESTIVE SYSTEM—Con.									
Inflammation of the intestines—Catarrhal								1	1
Constipation								1	1
Diarrhea		1	1					2	3
Periproctitis—Abscess		1		1					1
Inflammation of the peritoneum		1				1			1
DISEASES OF THE LYMPHATIC SYSTEM		2		1			1		2
Inflammation of lymph glands		1					1		1
Suppuration		1		1					1
DISEASES OF THE GENERATIVE SYSTEM								5	5
Stricture of urethra, organic								1	1
Ulcer of penis								2	2
Abscess of the scrotum								1	1
Inflammation of the testicle—Epididymitis								1	1
DISEASES OF THE ORGANS OF LOCOMOTION								1	1
Myalgia								1	1
DISEASES OF THE CONNECTIVE TISSUE		1		1				2	3
Abscess								2	2
Elephantiasis		1		1					1
DISEASES OF THE SKIN		1	1					2	3
Ulcer								2	2
Boil		1	1						1
Injuries									
LOCAL INJURIES		2		2				2	4
Wound of upper extremities								1	1
Fracture of bones of forearm—Radius		1		1					1
Sprain of ankle								1	1
Wound of lower extremities		1		1					1

TABLE VIII.—TABULATED STATEMENT, BY DISTRICTS, OF CAUSES OF MORTALITY AMONG PATIENTS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1900.

Causes of death.	Total.	Districts.								
		North Atlantic.	Middle Atlantic.	South Atlantic.	The Gulf.	The Ohio.	Mississippi.	Great Lakes.	Pacific.	Quarantine.
Total deaths from all causes	**443**	**36**	**74**	**58**	**59**	**37**	**55**	**55**	**61**	**8**
FROM DISEASES	**415**	**33**	**72**	**56**	**53**	**36**	**51**	**48**	**58**	**8**
FROM INJURIES	**28**	**3**	**2**	**2**	**6**	**1**	**4**	**7**	**3**	**0**
General Diseases	196	12	45	19	20	19	24	18	32	7
Smallpox	2			1						1
Typhus fever	1				1					
Influenza	1				1					
Enteric fever	31	3	5	2	2	2	4	6	5	2
Dysentery	4			1	1		1		1	
Yellow fever	5				4					1
Beri-beri	4	1								3
Malarial fever:										
Intermittent	12		3	1	1	1	6			
Remittent	7		5	1		1				
Erysipelas	1			1						
Tubercle	105	7	25	11	8	14	11	7	22	
Syphilis, secondary	7		1	1	1		1	2	1	
Effects of heat	1							1		
Alcoholism	2						1	1		
Rheumatism	2		2							
Osteo arthritis	1		1							
Sarcoma	2		1						1	
Carcinoma	5		2		1			1	1	
Leucocythemia	1					1				
Hodgkin's disease	1	1								
Adhesion of pericardium	1								1	
Local Diseases										
DISEASES OF THE NERVOUS SYSTEM	16	1	1	8	2	1	1	2	0	0
Degeneration of the posterior column	2		1			1				
Inflammation of pia mater and arachnoid	1			1						
Hemorrhage of brain	4			1	2			1		
Hyperæmia of brain	1			1						
Apoplexy	1			1						
Paralysis:										
Paraplegia	1	1								
Hemiplegia	2						1	1		
Mania, chronic	1			1						
Dementia, acute	1			1						
Dementia, chronic	1			1						
General paralysis of the insane	1			1						
DISEASES OF THE CIRCULATORY SYSTEM	109	9	14	16	13	9	17	17	14	0
Endocarditis	1			1						
Valvular disease:										
Aortic	14		5	1			3	1	4	
Mitral	17	1	2	5		3	3	3		
Aortic and mitral	5	1		2	1		1			
Degeneration of arteries	1							1		
Aneurism of arteries	4			2	1				1	
DISEASES OF RESPIRATORY SYSTEM:										
Bronchitis, catarrhal, chronic	2							2		
Spasmodic asthma	2		2							
Pneumonia	38	6	4	4	2	2	9	3	8	
Phthisis:										
Chronic	1			1						
Tubercular	19	1			9	3		6		
Pleurisy, acute	2		1			1				
Empyema	3						1	1	1	
DISEASES OF DIGESTIVE SYSTEM	44	6	4	8	12	3	2	4	5	1
Inflammation tonsils, suppurative	1				1					
Inflammation of stomach, catarrhal	4			1	2				1	
Ulceration of stomach	1	1								
Inflammation of the intestines—										
Enteritis	3	2						1		
Typhlitis	3	1	1						1	
Colitis	1			1						
Catarrhal	2				2					
Ulceration of the intestines	1				1					

TABLE VIII.—TABULATED STATEMENT, BY DISTRICTS, OF CAUSES OF MORTALITY AMONG PATIENTS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1890—Continued.

Causes of death.	Total.	Districts.								
		North Atlantic.	Middle Atlantic.	South Atlantic.	The Gulf.	The Ohio.	Mississippi.	Great Lakes.	Pacific.	Quarantine.
Diseases of Digestive System—Continued.										
Hernia	4	1	......	......	1	......	1	......	1	......
Obstruction of the intestines	2	......	1	1	......	......	......	......	......	......
Diarrhea	2	......	1	1	......	......	......	......	......	......
Stricture of the intestines	1	......	1	......	......	......	......	......	......	......
Periproctitis	2	......	......	1	1	......	......	......	......	......
Inflammation of the liver—										
Acute	3	......	......	......	1	......	......	......	2	......
Suppuration	1	......	......	......	......	......	1	......	......	......
Chronic	3	......	......	1	2	......	......	......	......	......
Hyperæmia of the liver	1	......	......	......	......	......	......	1	......	......
Inflammation of the pancreas	1	1	......	......	......	......	......	1	......	......
Hypertrophy of the liver	1	......	......	......	......	1	......	......	......	......
Calculi	1	......	......	......	......	......	......	1	......	......
Inflammation of the peritoneum	4	......	......	1	1	1	......	......	......	1
Dropsy	1	......	......	1	......	......	......	......	......	......
Abscess of spleen	1	......	......	......	......	1	......	......	......	......
Diseases of the Urinary System	40	5	7	3	4	3	5	7	6	0
Acute nephritis	4	......	......	......	1	1	2	......	......	......
Bright's disease	20	2	4	2	2	1	3	1	5	......
Chronic nephritis	11	2	2	1	......	1	......	5	......	......
Granular kidney	2	......	1	......	1	......	......	......	......	......
Inflammation of bladder, chronic	2	......	......	......	......	......	......	1	1	......
Incontinence of urine	1	1	......	......	......	......	......	......	......	......
Diseases of the Generative System	6	0	0	2	1	1	0	1	1	0
Stricture of the urethra, organic	4	......	......	2	1	......	......	......	1	......
Extravisation of urine	1	......	......	......	......	1	......	......	......	......
Hypertrophy of the prostate	1	......	......	......	......	......	......	1	......	......
Diseases of the Organs of Locomotion	2	0	1	0	0	0	1	0	0	0
Psoas, lumbar, and other abscesses	1	......	......	......	......	......	1	......	......	......
Posterior curvature of the spine	1	......	1	......	......	......	......	......	......	......
Diseases of the Skin	2	0	0	0	1	0	1	0	0	0
Ulcer	1	......	......	......	......	......	1	......	......	......
Carbuncle	1	......	......	......	1	......	......	......	......	......
Injuries	10	0	0	0	4	0	0	4	2	0
Burns and scalds	4	......	......	......	3	......	......	......	1	......
Multiple injury	6	......	......	......	1	......	......	4	1	......
Local Injuries	18	3	2	2	2	1	4	3	1	0
Rupture of artery	1	1	......	......	......	......	......	......	......	......
Wound of scalp with injury to pericranium	1	......	1	......	......	......	......	......	......	......
Fracture of base of skull	2	......	......	1	......	......	......	1	......	......
Concussion of brain	1	......	......	......	1	......	......	......	......	......
Fracture of ribs	1	1	......	......	......	......	......	......	......	......
Penetrating wound of pleura or lung	1	......	......	......	......	......	1	......	......	......
Fracture of spine	3	......	......	......	......	......	1	1	1	......
Contusion of abdomen	1	......	1	......	......	......	......	......	......	......
Wound of upper extremities	1	......	......	......	......	......	1	......	......	......
Wound of lower extremities	4	......	......	......	1	1	1	1	......	......
Fracture of femur	1	......	......	1	......	......	......	......	......	......
Fracture of tibia and fibula	1	1	......	......	......	......	......	......	......	......

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1900.

Operations.	No. of cases.	Remarks.
Total number of operations	1,372	
OPERATIONS ON TUMORS:		
Removal by excision	26	
For lipomo	10	
For papilloma	3	
For fibroma	3	
For osteoma	1	
For neuroma	1	
For sarcoma	1	
For carcinoma	5	
For condyloma	1	
For epithelioma	1	
OPERATIONS ON CYSTS	30	
Removal by excision	26	
Sebaceous cyst	20	
Bursal cyst	5	
Mucous cyst	1	
Removal by free incision and drainage	4	
Sebaceous cyst	1	
Serous cyst	1	
Bursal cyst	2	
EVACUATION OF ABSCESSES:		
By free incision and drainage	188	
Abscess of—		
Abdominal walls	4	
Alveolar process	3	
Arm	11	
Forearm	11	
Axilla	6	
Back	2	
Breast	1	
Buttock	3	
Epidydimis	1	
Eyelid	2	
Face	5	
Foot	6	
Finger	13	
Hand	44	
Hip	1	
Ischio rectal fossa	10	
Knee	3	
Liver	1	
Leg	6	
Lower jaw	3	
Neck	12	
Prostate	1	
Penis	1	
Perineum	10	
Rectum	6	
Scalp	3	
Scrotum	1	
Side (connective tissue)	1	
Toe	3	
Thigh	5	
Tonsil	1	
Urethra	6	
Psoas muscle	1	
Shoulder	1	
OPERATIONS FOR REMOVAL OF FOREIGN BODIES	4	
From eye	1	
From finger	1	
From arm	1	
From leg	1	
OPERATIONS ON BLOOD VESSELS	15	
Operation on arteries	1	
Aneurism of popliteal artery	1	Digital compression (successful).
Operations on veins	13	
Obliteration of varices—Leg	13	7 ligated and excised, 6 ligated.
Operation for hemmorhage by ligature	1	
Femoral artery	1	Successful.

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1900—Continued.

Operations.	No. of cases.	Remarks.
OPERATIONS ON THE LYMPHATIC ORGANS	331	
Aspiration and injection	8	
Glands of groin	8	
Incision and drainage of inflamed and suppurating glands.	129	
Groin	110	
Neck	10	
Axilla	9	
Removal of lymphatic glands	194	
Groin	187	
Post cervical	1	
Neck	5	
Epithrochlear	1	
OPERATIONS ON THE SKIN AND SUBCUTANEOUS TISSUE	27	
For lupus of face	3	2 successful excisions, 1 curetted—unsuccessful.
For chronic ulcer of leg	6	5 skin grafting by Thiersch's method; 1 skin grafting by Reverdin's method.
For phagedenic ulcer of penis	2	
Wound of—		
Scalp	4	
Arm	2	
Hand	3	
Lip	2	
Finger	2	
Leg	2	
Foot	1	
OPERATIONS ON BONES	92	
Incision of the periosteum	1	For necrosis of scapula.
Excision of portion of bone	7	
Of clavicle	1	For necrosis.
Of tibia	1	Do.
Of tarsus	2	Do.
Of metacarpal bones	1	Do.
Of metatarsal bones	2	Do.
Removal of fragments of bones by curetting and scraping	19	
Of superior maxilla	4	For necrosis.
Of inferior maxilla	4	Do.
Of femur	1	Sequestrum removed.
Of finger	5	For necrosis.
Of radius	1	Do.
Of sternum	2	Do.
Of tarsus	2	Do.
Operations for ununited fracture	10	
Of ulnar and radius	2	1 unsuccessful; 1 successful; ends of bones wired together.
Of tibia and fibula	1	Successful; ends of bones wired together and nailed.
Of tibia	4	Ends of bones wired together.
Of inferior maxilla	2	Scraped end of bones.
Of patella	1	
Refracture of bones	1	
Of tibia	1	
Operations on fractured bones for fracture of—	54	
Inferior maxilla	4	Wired by teeth and splint applied.
Clavicle	3	
Humerus	5	Reduced and splints applied.
Radius	4	Plaster-paris splint applied in 2.
Ulnar	4	Do.
Femur	3	Extension splint applied.
Patella	2	Fragments wired together.
Tibia	4	Plaster-paris splint applied.
Rib	9	Strapped with adhesive plaster.

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1900—Continued.

Operations.	No. of cases.	Remarks.
OPERATIONS ON BONES—Continued.		
Operations on fractured bones for fracture of—Con.		
Tibia and fibula	5	Plaster-paris splint applied.
Fibula	2	Do.
Tarsus	2	
Metacarpus	3	
Radius and ulnar	1	Splint applied.
Toe	1	
Finger	2	
OPERATIONS ON JOINTS	35	
Reduction of dislocation	22	
Shoulder	18	5 for old dislocations, others for recent.
Inferior maxilla	1	Reduced.
Elbow	2	Do.
Ankle	1	Do.
Excision of joint	2	
Of elbow	2	1 for compound comminuted fracture and 1 for ankylosis.
Removal of loose bodies from joints	1	
From knee	1	For dislocation of cartilage.
Operation for ankylosis	1	
Of joint	1	Exostoses removed and fibrous bands incised.
Aspiration of joints	3	
Of elbow joint	1	
Of knee joint	2	For inflammation.
Incision of joints	6	
Of elbow joint	2	1 incision and drainage for tubercle; 1 incision and drainage for abscess.
Of wrist joint	1	Incision and drainage for abscess.
Of hip joint	1	Incision and drainage for tubercle.
Of knee joint	1	Incision and drainage for abscess.
Of iliolumbar joint	1	
OPERATIONS ON MUSCLES, TENDONS, AND FASCIA	6	
For adhesions of tendons of hand	1	
For tenotomy of tendo-achilles	2	1 for displaced compound fracture of tibia; 1 for talipes equinus.
For union of divided tendons of the wrist	2	
For removal of ganglion	1	
AMPUTATIONS	80	
For injury	38	
Of thigh	1	Successful.
Of leg	5	3 at upper third; 2 at lower third.
At knee	1	For gangrene of foot and leg; recovery.
Of foot	3	
Of finger	23	
Of toe	5	
For disease	42	
Of shoulder	1	Osteosarcoma of humerus; successful.
Of thigh	4	2 at lower third for disease of knee-joint and 2 for disease of bones of leg.
Of leg	2	1 at middle third for gangrene of foot, 1 at lower third for frozen foot.
Of foot	4	
Of metacarpus	5	
Of finger	21	
Of toe	5	
OPERATIONS ON THE SKULL	2	
Opening of frontal sinus	1	For suppuration; successful.
Opening of mastoid cells	1	Do.

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1900—Continued.

Operations.	No. of cases.	Remarks.
OPERATIONS ON THE SPINE AND SPINAL CORD	2	
Excision of transverse processes and portion of bodies of the eleventh and twelfth dorsal vertebræ.	1	
Excision of arches dorsal vertebræ	1	For fracture dislocations.
OPERATIONS ON THE FACE, NASAL CAVITIES, AND MOUTH.	9	
For deviation of nasal septum	1	
Removal of nasal polypus (*a*) through the natural passage.	3	
Removal of tonsils	5	For hypertrophy.
OPERATIONS ON THE EYE AND ITS APPENDAGES	17	
Operation on the eyelid	2	
For wound of eyelid	1	Wound sutured.
For wound of ectropion	1	Excision of portion.
Operation on the other appendages of the eye	4	
For pterygium	4	Excision.
Operations on the eyeball	11	
For Corneal ulcer	2	1 cauterized, not successful; 1 excision of ulcer, successful.
Extraction of lens	4	1 for perforating wound of cornea, 3 for cataract.
Excision of eyeball	3	
Iridectomy	1	
Incision of false membrane over pupil	1	
OPERATIONS ON THE LARYNX AND THYROID BODY	1	
Tracheotomy	1	Died.
OPERATIONS ON THE PHARYNX AND OSOPHAGUS	1	
Dilitation of stricture of osophagus	1	
OPERATIONS ON THE THORAX AND BREAST	19	
Paracentesis of the pleural cavity	13	8 for chronic pleurisy with effusion; 5 for acute pleurisy with effusion; 12 recovered; 1 death.
Thoracotomy—(*a*) with excision of part of rib	2	1 recovered; 1 death.
Operation for removal of bullet	1	
Incision and drainage of lung cavity	3	3 Murphy's operation (unsuccessful).
OPERATIONS ON THE ABDOMEN	105	
Paracentesis of the abdomen	14	12 recovered; 2 deaths; all for ascites.
Abdominal section	23	
(1) Appendicitis	19	15 successful; 2 deaths; 2 still under treatment.
(2) Biliary fistula	2	Both unsuccessful.
(3) Cholecystotomy	1	
(4) Peritonitis	1	
Operations for hernia	68	
For radical cure	....	42 Bassinis operation; 1 death.
(1) Oblique inguinal	62	5 modified Bassinis operation.
(2) Direct inguinal	4	16 for radical cure; operation not named.
(3) Umbilical	1	3 modified Holstead strangulated femoral death.
(4) Femoral hernia	1	
OPERATIONS ON THE RECTUM AND ANUS	78	
For fistula in ano	37	
For anal fissure	1	

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1900.—Continued.

Operations.	No. of cases.	Remarks.
OPERATIONS ON THE RECTUM AND ANUS—Continued.		
For hemorrhoids	35	
(1) By dilitation of sphincter	1	
(2) By injection	2	
(3) By ligature	12	
(4) By excision	2	
(5) By cautery	18	
For stricture of rectum	3	
(1) By simple dilitation	2	
(2) By incision	1	
For removal of polypus of rectum	2	
OPERATION ON THE BLADDER AND URETHRA	90	
Perineal incision	1	For extravisation of urine.
Suprapubic tapping of bladder	1	
Median perineal cystotomy	2	
Excision of portion of bladder	1	For fistula.
For stricture of urethra	85	
(1) By gradual dilatation	36	
(2) By forcible dilatation	6	
(3) By internal urethrotomy	34	
(4) By external urethrotomy	6	
(5) By perineal section	3	2 successful, 1 unsuccessful.
OPERATION ON KIDNEY	1	
Nephrotomy	1	For calculus of kidney.
OPERATIONS ON THE MALE GENERATIVE ORGANS	212	
For phimosis	143	All circumcisions.
For paraphimosis	11	Do.
For ulcer of penis	1	Do.
For soft chancre	5	Do.
For elongated prepuce	3	Do.
For venereal warts	1	
For varicocele	8	
For hydrocele	32	
(1) By tapping	9	
(2) By tapping with infection	10	
(3) By incision	7	
(4) Excision of parietal part of sac	5	
(5) Castration and removal of sac	1	
For castration	7	1 for hypertrophy of prostate, 1 for hydrocele of cord and undescended testicle, 2 for orchitis, 3 for tubercle.
For removal of epididymis	1	For tubercle.
OPERATION ON THE FEMALE GENERATIVE ORGANS	1	
Hæmatoma of vulva	1	Incision.

TABLE X.—RATIO OF DEATHS FROM SPECIFIC CAUSES.

Deaths from—	Per 100 from all causes.	Deaths from—	Per 100 from all causes.
General diseases	44.02	Diseases of the digestive system	9.70
Diseases of the nervous system	3.62	Diseases of the urinary system	9.03
Diseases of the circulatory system	9.71	Injuries	6.32
Diseases of the respiratory system	15.12	From all other causes	2.48

TABLE XI.—RATIO OF DEATHS IN EACH DISTRICT.

District.	Per 100 patients treated in hospital.	District.	Per 100 patients treated in hospital.
North Atlantic	2.93	The Mississippi	3.46
Middle Atlantic	4.38	The Great Lakes	2.42
South Atlantic	2.93	The Pacific	3.78
The Gulf	4.11	The quarantine stations	12.90
The Ohio	3.58		

TABLE XII.—COMPARATIVE EXHIBIT—MORTALITY PER 100 PATIENTS TREATED IN HOSPITAL, BY DISTRICTS, 1891-1900.

Districts.	General average.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.
North Atlantic	2.75	2.50	2.62	2.46	2.36	3.09	2.73	2.95	2.55	3.40	2.93
Middle Atlantic	3 94	3.77	3.44	3.69	4.17	4.56	4.12	3.75	3.92	3.69	4.38
South Atlantic	3.19	2.56	2.71	3.37	4.00	3.56	3.55	2.83	3.49	2.99	2.93
The Gulf	3.22	3.88	3.63	3.29	2.38	2.98	2.90	3.33	2.94	2.78	4.11
The Ohio	2.84	2.54	1.53	3.01	2.51	3.23	3.24	2.78	2.73	3.28	3.58
The Mississippi	3.30	3.67	3.37	3.64	3.99	2.53	3.20	2.92	3.18	3.13	3.46
The Great Lakes	2.76	2.44	4.11	2.76	2.61	2.54	2.26	2.86	2.34	3.26	2.42
The Pacific	4.13	4.43	3.83	3.73	3.76	4.38	4.70	4.40	3.43	4.87	3.78
The quarantine stations	6.61	......	......	......	......	......	4.76	4.94	2.68	1.15	12.90

TABLE XIII.—COMPARATIVE EXHIBIT—RATIO OF DEATHS FROM SPECIFIC CAUSES, 1891-1900.

Deaths from—	General average.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.
General diseases	48.01	52.66	43.42	47.70	47.70	43.94	50.70	48.99	45.45	55.60	44.02
Diseases of the—											
Nervous system	4.83	3.69	6.05	4.81	5.58	4.81	4.65	5.56	6.56	3.02	3.62
Circulatory system	9.76	9.84	9.60	8.99	5.58	10.76	11.39	9.85	12.86	9.07	9.71
Respiratory system	13.54	15.16	15.85	13.38	16.51	16.24	12.23	10.35	11.29	9.30	15.12
Digestive system	7.90	5.33	7.30	7.11	8.48	10.53	6.51	9.09	7.35	7.67	9.70
Urinary system	6.07	4.71	4.80	6.48	5.35	6.17	3.49	7.07	5.25	8.37	9.03
Injuries	6.39	5.33	7.72	8.99	5.58	3.43	6.28	6.31	8.66	5.35	6.32
From all other causes	3.49	3.28	5.26	2.54	5.57	4.12	4.65	2.78	2.63	1.62	2.48

TABLE XIV.—COMPARATIVE EXHIBIT—AVERAGE DURATION OF TREATMENT IN HOSPITAL IN EACH DISTRICT, 1891-1900.

Districts.	General average.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.
North Atlantic	29.34	29.68	24.37	24.12	26.14	29.97	31.07	26.93	33.11	36.90	31.18
Middle Atlantic	28.64	26.81	26.87	26.29	24.60	34.21	29.68	30.39	29.75	29.37	28.45
South Atlantic	27.47	26.19	26.26	29.23	29.48	29.80	26.83	26.80	29.37	25.73	25.02
The Gulf	22.05	21.07	21.97	22.33	22.13	22.46	22.24	22.41	21.35	21.41	23.15
The Ohio	23.65	24.92	23.81	23.37	22.80	25.18	25.43	22.20	23.83	23.02	21.98
The Mississippi	19.88	22.61	20.59	19.84	21.51	22.92	20.74	19.00	18.57	17.56	15.47
The Great Lakes	26.28	27.09	27.82	27.07	28.32	28.34	28.25	26.27	25.45	24.02	20.24
The Pacific	35.77	32.68	36.92	40.27	43.57	40.66	38.81	36.20	28.41	29.12	31.15
The quarantine stations	12.47	......	......	......	......	19.97	10.00	11.69	9.00	10.43	13.72

TABLE XV.—NATIVITIES OF PATIENTS TREATED IN UNITED STATES MARINE HOSPITALS DURING THE FISCAL YEAR ENDED JUNE 30, 1900.

Countries.	Number.	Countries.	Number.
Total	12,142	India	2
		Ireland	761
Africa	12	Italy	60
Australia	2	Japan	48
Austria	116	Malta	2
Bavaria	2	Mexico	13
Belgium	9	Newfoundland	115
Bohemia	3	New Zealand	4
Brazil	2	Norway	754
British Columbia	1	Persia	1
British Guiana	2	Peru	2
British Honduras	1	Philippines	6
British India	1	Poland	6
Canada	315	Portugal	46
Cape Verde Islands	43	Prussia	2
Central America	2	Russia	66
Chile	4	Samoa	2
China	3	Scotland	147
Denmark	143	Siam	1
East Indies	4	South America	1
England	377	Spain	54
Finland	255	Sweden	676
France	70	Switzerland	15
Germany	504	Turkey	7
Greece	38	United States of America	7,195
Guam	4	United States of Colombia	2
Hawaii	8	Wales	17
Holland	33	West Indies	156
Hungary	3	Unknown	23
Iceland	1		

DIVISION OF SANITARY REPORTS AND STATISTICS.

REPORT OF THE DIVISION OF SANITARY REPORTS AND STATISTICS.

By George Tully Vaughan,
Surgeon, United States Marine-Hospital Service, in Charge.

Cholera.

November 1, 1899, to June 30, 1900.

CHINA.

United States Consul George Smith reports in October that cholera occurs epidemically in Chunking, but that it has occurred only once during the last six years. December 14, 1899, cholera was reported at or near Saigon, Cochin China.

TURKEY.

In October cholera was reported as having broken out in the vilayet of Bassorah, especially in the southern quarter of the city, and the date plantation south of the city. The origin of the disease was believed to be Karachi or Djwadir (Jewa).

Twenty-five deaths occurred, but the number of cases was not reported. One death occurred on the British man-of-war *Lapwing*.

Soon after cholera cases were reported at Sook el shoo Yookh, Nassirieh, on the Euphrates, and at Amara, on the Tigris, and at Mohamera, in Persia (7 cases). At Djwadir, up to November 1, 1899, 380 deaths were reported.

ARABIA.

October 11, 1899, Vice Consul Mackirdy reported that cholera of a mild type had broken out at Matrah in September. Matrah is a town of about 20,000 inhabitants, situated west of Maskat. The origin of the disease was given as Karachi, India, extending there by sea to Gwadur, a small town on the coast of Beluchistan. It prevailed in Gwadur for about one month and is supposed to have been brought from there to Matrah by some of the people who succeeded in evading the quarantine. Deaths in Matrah, 135. Many cases and deaths occurred after November, 1899, in Matrah and the river valleys, and at Bendir Bouchir, the fort city of the northeast coast of the Persian Gulf, the number of deaths increased fourfold.

Cholera occurred in Arabia as follows: Djiddah, May, 153 deaths; June, 77 deaths; July, 78 deaths; September, 63 deaths; Matrah, September 25 to October 11, 135 deaths.

JAPAN.

From Osaka and Hiogo one or two doubtful cases have been reported.

INDIA.

As usual, the great majority of cases of cholera have been reported from the cities of India, especially Calcutta. Bombay, Karachi, and Madras.

Below is given a table of cholera in two sections, namely, from June 30 to December 29, 1899, and from the latter date to June 29, 1900.

Cholera as reported to the Surgeon-General United States Marine-Hospital Service.

JUNE 30, 1899, TO DECEMBER 29, 1899.

[Reports received from United States consuls, through the Department of State, and from other sources.]

Places.	Date.	Cases.	Deaths.	Remarks.
Arabia:				
Matrah	Sept. 25–Oct. 11		135	
India:				
Bombay	June 6–Nov. 21		23	
Calcutta	May 13–Nov. 4		319	
Kurrachee	Oct. 1–Oct. 21	18	21	
Madras	May 20–Sept. 1		10	
Japan:				
Fukuoka Ken	July 26–Aug. 20	1		
Kanagawa Ken	do	3		
Miye Ken	do	1		
Osaka and Hiogo	June 10–Aug. 26	4	3	
Tokyo Fu	July 26–Aug. 31	31	7	
Yokohama	July 16–Aug. 26	3	3	
	Oct. 8–Oct. —	1		
Persia:				
Mohamera	Nov. 9	7		
Straits Settlements:				
Singapore	Aug. 1–Aug. 31		1	
	Oct. 8–Oct. 28		11	
Turkey:				
Amara	Nov. 9			Cholera reported.
Bassorah	Oct. 16–Oct. 22		25	
Fao	Nov. 17			Do.
Kaurna	Nov. 9			Do.
Nassirieh	do			Do.
Shatra	Nov. 18			Do.
Shooan	Nov. 9			Do.
Sookelshooyookh	do			Do.
DECEMBER 29, 1899, TO JUNE 29, 1900.				
Arabia:				
Oman	Mar. 10			Cholera reported.
India:				
Bombay	Nov. 22–May 15		199	
Calcutta	Nov. 5–Apr. 28		1,304	
Kurrachee	May 7–13	2		
Madras	Apr. 7–May 4		2	
Japan:				
Osaka and Hiogo	Apr. 1–Apr. 28	1		
Persia:				
Kishma	June 6			Do.

YELLOW FEVER.

UNITED STATES.

NOVEMBER 1, 1899–JUNE 30, 1900

By November 1, 1899, yellow fever, which had prevailed in Key West, Miami, New Orleans, and some towns in Mississippi, had about run its course for the season, though cases were reported in gradually diminishing numbers until about the middle of December, 1900.

From August, when the disease was first reported, to December 19 there were reported 1,742 cases of yellow fever and 116 deaths, a mortality of 6.66 per cent.

At Key West there occurred 1,320 cases and 68 deaths, mortality of 5.1 per cent; at Miami, 206 cases and 15 deaths, mortality of 7.2 per cent; at Port Tampa City, 10 cases and 1 death, mortality 10 per cent; at New Orleans, 115 cases and 20 deaths, mortality 17.3 per cent; at Baltimore, 1 case, 1 death; at quarantine station at Centerville, Miss., 2 cases, no deaths; at Flora yellow fever was reported, but the number of cases was not given; at Jackson, 61 cases, 9 deaths, mortality 14.7 per cent; and at Mississippi City, 27 cases, 2 deaths, mortality 7.4 per cent. No cases have been reported as occurring in the United States during the six months ended June 30, 1900.

A table of yellow fever in the United States is annexed.

Yellow fever in the United States as reported to the Surgeon-General United States Marine-Hospital Service from August 31 to December 29, 1899.

Places.	Date.	Cases.	Deaths.
Florida:			
Key West	Aug. 31–Nov. 30	1,320	68
Miami	Sept. 5–Sept. 22	2	1
	Oct. 17–Dec. 19	204	14
Port Tampa City	Sept. 4–Nov. 16	10	1
Louisiana:			
New Orleans	Aug. 27–Dec. 9	115	20
Maryland:			
Baltimore	Oct. 8	[a]1	1
Mississippi:			
Centerville	Sept. 29	2	....
Flora	Oct. 25	([b])	....
Jackson	Sept. 10–Oct. 30	55	8
	Oct. 31–Nov. 1	6	1
Mississippi City	Sept. 1	1	1
	Sept. 14–Sept. 29	26	1
Grand total		1,742	116

[a] At quarantine station.

[b] Yellow fever reported.

FOREIGN AND INSULAR.

Yellow fever during the year from July 1, 1899, to June 30, 1900, has been pretty widely distributed, having been reported in the following cities and countries: Buenos Ayres, Argentina; Bahia, Casa Branca, Jemdiahy, Rio de Janeiro, St. Felix, Santos, and Sorocabo, Brazil; Barranquilla, Cartagena, Colon, Panama, Colombia; Alajuela, Heredia, Port Limon, Punta Arenas, and San Juan, Costa Rica; Cienfuegos, Cristo, Daiquiri, Guantanamo, Habana, Manzanillo, Matanzas, Nuevitas, Puerto Principe, Quemados, Santa Clara, Santiago, Sancti Spiritu, and Trinidad, Cuba; Amealco, Chilpanzingo, Cinchapa, Coatzacoalcos, Cordoba, Cosamaloapam, Hidalgo, Jalapa, Juchitan, Laguna, Merida, Orizaba, Progreso, San Geronimo, San Juan la Junta, San Lorenzo, Tampico, Tapona, Tuxpan, Vera Cruz, and Victoria, Mexico; Bluefields, Nicaragua; San Salvador, Salvador; Goree-Dakar, West Africa, and Curacao, West Indies.

The tables given below show that Brazil, Mexico, Cuba, and Colombia report the most of the cases.

According to reports received from July 1, 1899, to June 30, 1900, there occurred 899 deaths from yellow fever in Brazil, 1,018 in Mexico, 214 in Cuba, and 87 in Colombia.

The occurrence of this disease in Cuba is of vital interest on account of its proximity, making it a constant menace to the United States.

An article by Surg. H. R. Carter on yellow fever in Habana, printed in the Public Health Reports of July 20, 1900, is of interest in this connection.

Yellow fever, as reported to the Surgeon-General United States Marine-Hospital Service.

JUNE 30, 1899, to DECEMBER 29, 1899.

[Reports received from United States consuls through the Department of State and from other sources.]

Places.	Date.	Cases.	Deaths.	Remarks.
Argentina:				
Buenos Ayres	Apr. 1–Apr. 30		4	
	June 1–June 30		8	
	Aug. 1–Aug. 31	1	1	
Brazil:				
Bahia	June 3–Aug. 12	177	85	
	Oct. 15–Oct. 21	1	1	
Para	June 1–June 30		19	
Rio de Janeiro	May 19–Nov. 3		100	
St. Felix	June 7			Reported present.
Colombia:				
Barranquilla	June 10–June 24	2	2	
	Aug. 6–Sept. 16	2	2	
	Oct. 22–Nov. 18	2	2	
Cartagena	Aug. 30–Sept. 9	2	1	
Colon	Aug. 28–Sept. 3	1	1	
Panama	June 16–Aug. 8	88	45	
	Aug. 15–Sept. 19	27	9	
	Nov. 30–Dec. 19	17	7	
Costa Rica:				
Alajuela	Aug. 4–Sept. 24	60	21	
Heredia	do	1		
Port Limon	Aug. 18–Aug. 29	2	1	
Punta Arenas	Aug. 4			Yellow fever reported.
Cuba:				
Cienfuegos	July 23–July 29	1	1	Doubtful. On the ss. Euskaro at sea.
Cristo	Aug. 13–Aug. 14	1		
Daiquiri	Aug. 27–Sept. 2	1		
Guantanamo	Oct. 13	1		On ss. Flandria.
Habana	June 15–Sept. 30	95	38	
	Oct. 1–Nov. 4	82	25	
	Nov. 5–Dec. 16	59	29	
Manzanillo	July 2–Oct. 7	11	2	
Matanzas	June 17–July 27	2	1	One doubtful.
	Aug. 6–Aug. 12	1	1	
	Oct. 3	1		
	Dec. 2	1		
Nuevitas	Sept. 10–Sept. 16	1		
	Nov. 14	1		On transport Ingalls.
Puerto Principe	To Aug. 9	39	13	
	Nov. 18	1		
Santa Clara	Oct. 27	1	1	
Santiago	June 10–Nov. 18	228	50	
	Dec. 3–Dec. 9	2		
Sancti Spiritu	Aug. 24	2		
Curacao	Oct. 8–Oct. 14	1	1	
Mexico:				
Amealdo	do			Yellow fever reported.
Chilpanzingo	Sept. 14			Yellow fever prevalent.
Cinchapa	Aug. 23			Yellow fever reported.
Cordoba	June 21	23	14	
	May 1–Aug. 26		133	
Cosamaloapam	Aug. 21	1		
Hidalgo	Aug. 23			Do.
Jalapa	Aug. 9		5	
Juchitan	Aug. 23			Do.
Merida	July 1	1		
Orizaba	May 1–July 24		11	
	Aug. 29–Sept. 30		66	
	Oct. 1–Nov. 8		36	
Progreso	July 25	2	1	
San Geronimo	Aug. 23			Do.
San Juan la Junta	Aug. 24			Do.
San Lorenzo	do			Do.
Tampico	July 1–July 7	1	1	
	Sept. 16–Sept. 29	4	1	
	Oct. 2	7		
Tapona	Aug. 23			Do.
Tuxpan	July 30–Nov. 6		69	
Vera Cruz	June 15–Nov. 24		245	
	Dec. 8–Dec. 21		5	
Victoria	Oct. 6			Do.
Nicaragua:				
Bluefields	Sept. 23–Sept. 30		1	
Salvador:				
San Salvador	June 30–Aug. 1	3	1	
	Sept. 1			Do.

Yellow fever, as reported to the Surgeon-General United States Marine Hospital Service—Continued.

DECEMBER 29, 1899, TO JUNE 29, 1900.

Places.	Date.	Cases.	Deaths.	Remarks.
Argentina:				
Buenos Ayres	Nov. 1–Nov. 30		1	
Brazil:				
Bahia	Feb. 4–Mar. 3	5	2	
Casa Branca	Jan. 1–Jan. 31		10	
Jemdiahy	do		1	
Rio de Janeiro	Nov. 4–May 11		316	
Santos	Jan. 16–Apr. 8		160	
Sao Paulo	Jan. 1–Jan. 31		5	
Sorocaba	do		200	
Colombia:				
Barranquilla	Dec. 24–June 2		8	
Panama	Dec. 20–Dec. 26		1	
	Mar. 1–June 5	35	9	
Costa Rica:				
Port Limon	Apr. 20	1		
San Juan	May 6	1		
Cuba:				
Cienfuegos	Feb. 10	7		On training ship Lancaster in quarantine.
Habana	Dec. 1–Dec. 31	70	22	
	Jan. 1–Mar. 31	41	17	No report received for week ended Feb. 24.
	Apr. 1–Apr. 30	5		
	May 3–June 6	5	2	
Matanzas	Dec. 29		1	
	Feb. 11–Feb. 17	1	1	
Nuevitas	Apr. 16	1		
Quemados	May 16–June 17	17		
Santa Clara	May 20–June 20	23	8	In barracks.
Santiago	Dec. 10–Dec. 30		3	
Trinidad	June 19–June 21	4		
Mexico:				
Coatzacoalcos	May 13			Yellow fever reported.
Cordoba	May–Dec., 1899	730	353	
Laguna	Mar. 4		1	Several cases.
Progreso	June 9–June 15	2	1	
Vera Cruz	Dec. 22–June 16		76	
Salvador:				
San Salvador	Apr. 8			Yellow fever epidemic.
	Feb. 11–Mar. 3		5	
	Apr. 11	38		
West Africa:				
Goree-Dakar	Apr. 16–May 30	10		
West Indies:				
Curaçao	Feb. 4–Feb. 10	1		

PLAGUE.

This disease during the period from July 1, 1899, to June 30, 1900, has been more widespread in its prevalence than at any other period of the world's history.

UNITED STATES.

MARCH 6 TO OCTOBER 31, 1900.

On March 6, 1900, a case of plague appeared in San Francisco, since which time there have been reported in that city to date a total of 18 cases and 18 deaths, the last case being reported October 14.

The measures taken in regard to plague in San Francisco, correspondence with local authorities, etc., will be found in report of division of domestic quarantine.

Following is table of cases and deaths as reported:

Places.	Date.	Cases.	Deaths.	Remarks.
California:				
San Francisco	Mar. 7–July 6	13	13	
Do	Aug. 12	1	1	
Do	Aug. 18	1	1	
Do	Oct. 5	1	1	
Do	Oct. 10	1	1	
Do	Oct. 14	1	1	

FOREIGN AND INSULAR.

November 1, 1899, to June 30, 1900.

In July, 1899, the following places were affected:

Arabia, Djiddah; China, Amoy and Hongkong; Egypt, Alexandria; French Ivory Coast Colony, Grand Bassam; India, Bombay, Calcutta, Karachi, and throughout the Presidency of Bombay. In the city of Bombay alone, from the latter part of the year 1896 to September, 1899, there were reported 23,331 cases and 17,809 deaths; and during the same time there were reported as having occurred in the Presidency of Bombay 220,907 cases, with 164,083 deaths. In Japan the disease was reported from Kanagawa Ken, Nagasaki Ken, and in Taiwan and Tamsui, Formosa—the large majority of the cases occurring in Formosa; in the island of Mauritius; in Persia, at Bushire; in Portugal, at Oporto and Lisbon; in the Straits Settlements, at Penang and Singapore; and in Turkey, at Bassorah.

In October, 1899, plague was reported in Brazil, at Santos—the first time it had occurred in the Western Hemisphere. Its origin is not clear—probably from Oporto or one of the cities of India, through the channels of commerce. It is known that between June and August 14, 19 steamers, carrying 593 passengers, from Leixoes (near Oporto) arrived at Santos. Before December, 1899, plague was reported at Fuchau, Niuchwang, and Yinkon, China; at Plymouth, England, on the steamship *Peninsula;* at Lourenço Marquez and Magude in Africa; at Tamatave, Madagascar; Asuncion, Paraguay; at Leixoes and Masan, Portugal; and at Kolobovka, Astrakhan, Russia. During the six months ended June 30, 1900, plague was reported at the following places in addition to those given before:

Aden, Beni Shekir, Matrah, and Yambo, Arabia; Buenos Ayres and Rosario, Argentina; Adelaide, Brisbane, and Sydney, Australia; El Tor, Port Said, and Suakim, Egypt; Hawaiian Islands—the first death having occurred December 11, 1899; Fukuoka Ken, Hiroshima, Kobe, Osaka and Hiogo, Shidzuoka Ken, and Wakayama Ken, Japan; Kurdistan; Numea, New Caledonia; Djivanro, Persia; Malabon, Manila, and San Pedro Mascote; Villa Nova de Gayo, Portugal; Cape Town, South Africa, on steamship *Kilburn*, from Rosario; one case at Tuy, Spain; and Smyrna, Turkey.

Below is given a table of plague cases and deaths in two sections:

Plague, as reported to the Surgeon-General United States Marine-Hospital Service.

JUNE 30, 1899, TO DECEMBER 29, 1899.

[Reports received from United States consuls through the Department of State and from other sources.]

Places.	Date.	Cases.	Deaths.	Remarks.
Arabia:				
Djiddah	June 30			Plague reported.
Austria:				
Trieste	Nov. 4	1	1	
Brazil:				
Santos	Oct. 18–Nov. 18	28	11	
Sao Paulo	Oct. 29–Nov. 17	2		
China:				
Amoy	July 1–Aug		540	
Hongkong	Apr. 11–Oct. 28	1,640	1,582	
	Nov. 29–Dec. 4	1	1	
Fuchau	Aug. 5–Aug. 26			Do.
Niuchwang	Aug. 18			Do.
Yingkon	do			Do.
Egypt:				
Alexandria	May 4–Sept. 30	93	44	
	Nov. 9	1		
England:				
Plymouth	Oct. 9	1		On steamship Peninsula.
French Ivory Coast Colony:				
Grand Bassam	June 7	200		
India:				
Bengal	Oct. 2-Oct. 15		74	
Bombay, presidency of	Sept. 10–Sept. 23		8,359	
				TOTALS TO AUGUST 11, 1899.[a]
Ahmedabad district	Oct. 16–Nov. 18		19	
Ahmednugger district	Aug. 5–Aug. 11	45	31	Total, 1,273 cases; 956 deaths.
	Oct. 9–Nov. 18		766	
Akalkot State	Oct. 2–Nov. 18		11	
Aundh State	Aug. 5–Aug. 11	26	17	Total, 1,951 cases; 1,383 deaths.
	Oct. 2–Nov. 18		518	
Belgaum district	Aug. 5–Aug. 11	750	598	Total, 29,300 cases; 22,042 deaths.
	Oct. 2–Nov. 18		3,105	
Baroda Territory	Aug. 5–Aug. 11	29	19	Total, 8,005 cases; 5,982 deaths.
	Oct. 2–Oct. 29		35	
Bhor State	Oct. 2–Nov. 18		149	
Bijapore district	Aug. 5–Aug. 11	98	82	Total, 2,626 cases; 2,130 deaths.
	Oct. 2–Nov. 18		1,032	
Broach district	Aug. 5–Aug. 11	37	27	Total, 1,530 cases; 1,146 deaths.
	Oct. 2–Oct. 29		17	
Cutch State	Aug. 5–Aug. 11	29	27	Total, 10,477 cases; 8,634 deaths.
	Oct. 2–Nov. 18		31	
Dharwar district	Aug. 5–Aug. 11	143	95	Total, 38,754 cases; 31,307 deaths.
	Oct. 2–Nov. 18		2,710	
Hyderabad district	Oct. 1–Nov. 18		437	
Janjira State	Aug. 5–Aug. 11	0	1	Total, 413 cases; 269 deaths.
	Oct. 2–Oct. 29		13	
Kaira district	Aug. 5–Aug. 11	58	46	Total, 2,069 cases; 1,578 deaths.
	Oct. 2–Nov. 18		38	
Kathiawar State	do		38	
Kanara district	Aug. 5–Aug. 11	11	11	Total, 433 cases; 311 deaths.
	Oct. 2–Nov. 18		88	
Khandesh district	Aug. 5–Aug. 11	1	0	Total, 1,000 cases; 810 deaths.
	Oct. 2–Oct. 29		7	
Kolaba district	Aug. 5–Aug. 11	15	9	Total, 2,913 cases; 2,480 deaths.
	Oct. 9–Nov. 18	15	21	
Kolhapore and Southern Mahratta country.	do	624	500	Total, 19,185 cases; 14,408 deaths.
Kurrachee	Aug. 5–Aug. 11	1	1	
	Oct. 2–Nov. 18		18	Total, 6,573 cases; 5,084 deaths.
Nassik district	Aug. 5–Aug. 11	470	361	
	Oct. 2–Nov. 18		1,992	Total, 20,162 cases; 15,480 deaths.
Poona district	Aug. 5–Aug. 11	1,400	1,150	
	Oct. 2–Nov. 18		3,202	Total, 442 cases; 341 deaths.
Poona city	Oct. 16–Nov. 18		171	
Rewa Kantha	Aug. 5–Aug. 11	26	25	Total, 742 cases; 618 deaths.
Rutnagherry district	do	18	15	
	Oct. 2–Nov. 18		89	Total, 27,087 cases; 21,211 deaths.
Satara district	Aug. 5–Aug. 11	228	177	
	Oct. 2–Nov. 18		3,070	Total, 62 cases; 38 deaths.
Savanur State	Aug. 5–Aug. 11	1	1	
	Oct. 2–Nov. 18		192	Total, 4,912 cases; 3,960 deaths.
Sholapore district	Aug. 5–Aug. 11	29	28	
	Oct. 2–Nov. 18		494	Total, 7,947 cases; 5,842 deaths.

[a] Extract from Indian Times sent by United States consul.

Plague, as reported to the Surgeon-General United States Marine-Hospital Service—Cont'd.

JUNE 30, 1899, TO DECEMBER 29, 1899—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
India—Continued.				
Bombay—Continued.				
Surat district	Aug. 5–Aug. 11	61	40	
	Oct. 2–Nov. 18		345	Total, 12,366 cases; 9,794 deaths.
Thana district	Aug. 5–Aug. 11	108	86	
	Oct. 2–Nov. 18		209	
				Grand total, 220,907 cases; 164,083 deaths.
Bombay city	May 27–Nov. 18		1,743	
Calcutta	May 13–Nov. 18		733	
Central provinces	Oct. 9–Nov. 18		190	
Hyderabad State	Oct. 2–Nov. 18		1,546	
Kurrachee city	Aug. 6–Nov. 18		43	
Madras Presidency	Oct. 2–Nov. 18		77	
Mysore State	do		957	
Punjab	Oct. 16–Nov. 18		13	
Japan:				
Kanagawa Ken	July 1–July 10	2	1	
Kobe	Nov. 7–Nov. 30	11	10	Plague reported epidemic.
Osaka and Hiogo	Nov. 5–Nov. 18	4	3	
Nagasaki Ken	Nov. 15	2		
Taiwan, Formosa	do	14	6	
Tamsui, Formosa	Apr. 1–July 26	1,550	1,236	Total since outbreak, 2,468 cases; 1,866 deaths.
	Aug. 1–Sept. 30		19	
Lorenzo Marquez:				
Lorenzo Marquez	Nov. 4	3		
Magude	Sept. 22			Plague reported.
Madagascar:				
Tamatave	Sept. 10–Nov. 12	36	25	
Mauritius	May 4–May 31	1	5	
	July 14–July 20	30	29	
	Aug. 10–Aug. 28	68	42	
Mozambique	Aug. 25			Plague reported.
Paraguay:				
Asuncion	Sept. 24–Oct. 8		5	
Persia:				
Bushire	June 8			Plague reported.
	May 26–June 18		40	
Portugal:				
Leixoes	Oct. 30			Do.
Lisbon	Aug. 16			Do.
Do	Nov. 12	1	1	
Masan	Dec. 25			Do.
Oporto	Aug. 16–Oct. 31	223	77	
	Nov. 1–Nov. 20	41	17	
Réunion (Isle de)	July 24	1	1	
Russia:				
Kolobovka, Astrakhan	Aug. 1–Aug. 10		21	
St. Petersburg	July 23–July 29	1		
	Aug. 6–Aug. 12	1		
Straits Settlements:				
Penang	Jan. 4–July 21	49	39	
Singapore	May 27–June 17	0	3	
Turkey:				
Bassorah	June 19	1	1	

DECEMBER 29, 1899, TO JUNE 29, 1900.

Arabia:				
Aden	Feb. 25–May 26	398	391	
Beni-Shekir, Yemen	Dec. 7		15	
Djiddah	June 4		69	
Matrah	Feb. 24–Mar. 10		34	
Yambo	May 29		40	
Argentina:				
Buenos Ayres	Jan. 13–Mar. 12	46	16	
Rosario	Jan. 25			Plague reported epidemic.
Australia:				
Adelaide	Jan. 16	2		
Brisbane	Mar. 1–Mar. 31	4		
Sydney	Jan. 20–May 19	239	82	
Brazil:				
Conceicao dos Guarulhos	Dec. 31	3		
Rio de Janeiro	Jan. 6–Jan. 12	2	1	
	Apr. 20		6	
	Apr. 8–May 19	23		
	May 6–June 9	106	39	
Santos	Oct. 13–Jan. 13	39	15	
Sao Paulo	Dec. 15–Dec. 31	4	3	

Plague, as reported to the Surgeon-General United States Marine-Hospital Service—Cont'd.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy	June 23			Plague reported.
Hongkong	Nov. 12–Dec. 30	11	10	
	Mar. 25–Mar. 31	4	4	
	Apr. 7–May 19	276	240	
Egypt:				
Alexandria	May 11–May 19	8	3	
El Tor	May 9			Among pilgrims.
Port Said	Apr. 20–May 28	41	21	
Suakim	May 9			Reported.
Formosa:				
Tamsui	Oct. 1–Dec. 12	46	25	
	Jan. 1–Apr. 12	239	176	
Hawaiian Islands:				
Hilo	Feb. 13	1		
Kahului	Jan. 30–Feb. 25	8	1	
Honolulu	Dec. 11–Mar. 31	71	61	
India:				
Bombay presidency and Sind—				
Ahmedabad district	Nov. 19–Apr. 28		17	
Ahmednagar district	do		233	
Akalkot State	do		10	
Aundh State	do		45	
Baroda State	do		11	
Belgaum district	do		1,207	
Bhor State	do		122	
Bijapur district	do		539	
Bombay city	Nov. 19–May 15		9,349	
Broach district	Nov. 19–Apr. 28		0	
Cutch State	do		1,890	
Dharwar district	do		1,830	
Hyderabad (Sind) district	do		119	
Janjira State	do		144	
Kaira district	do		1	
Kanara district	do		20	
Kurrachee city	Nov. 19–May 20		2,478	
Kurrachee district	Nov. 19–Apr. 28		1,364	
Kathiawar State	do		164	
Khandesh district	do		1	
Kolaba district	do		115	
Kolhapur State	do		1,839	
Mahi Kantha State	do		0	
Nasik district	do		145	
Palanpur State	do			
Panch Mahals district	do		0	
Poona city	do		22	
Poona district	do		514	
Ratnagiri district	do		311	
Rewakantha State	do		0	
Sachin State	Dec. 3–Apr. 28		26	
Satara district	Nov. 19–Apr. 21		707	
Savantvadi State	do		4	
Savanur State	do		33	
Shikarpur district	do		1	
Sholapur district	do		1,688	
Surat district	do		179	
Thana district	do		868	
Upper Sind frontier	do			
Outside Bombay presidency and Sind—				
Madras Presidency—				
Anantapur district	Nov. 19–Apr. 28			
Bellary district	do		50	
Chingleput district	do		2	
Kurnool district	do			
Madras city district	do			
North Arcot district	do		7	
Salem district	do		408	
Nilgris	Apr. 14–Apr. 21	1		
South Canara district	Feb. 25–Apr. 14		1	
Nellore district	Nov. 19–Apr. 14			
Trichinopoly district	do			
Coimbatore district	do		24	
Vizagapatam	Jan. 28–Apr. 14		1	
Mysore State—				
Bangalore city	Jan. 6–Apr. 28		249	
Bangalore civil and military station	do		197	
Bangalore district	do		571	
Kolar district	do		13	

Plague, as reported to the Surgeon-General United States Marine-Hospital Service—Cont'd.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
India—Continued.				
Outside Bombay presidency—Continued.				
Mysore State—Continued.				
Kolar gold fields	Jan. 6–Apr. 28		89	
Mysore city	do		141	
Mysore district	do		181	
Tumkur district	do		133	
Chitaldrug district	do		81	
Hyderabad State—				
Gulburga district	Dec. 31–Apr. 28		112	
Lingsugur district	do		595	
Naldrug district	do		272	
Bidar district	do		3	
Aurangabad district	do		9	
Central provinces—				
Wardha district	Nov. 19–Apr. 28		10	
Nagpur city	do		463	
Nagpur district	do		87	
Nimar district	do		1	
Punjab—				
Jullundur district	do		268	
Hoshiarpur district	do		10	
Patiala State	Mar. 18–Apr. 28		11	
Rawal Pindi district	do			
Bengal—				
Calcutta	Nov. 19–Apr. 28		6,847	
Berhampore district	Mar. 18–Apr. 28		1	
Burdwan district	Feb. 11–Apr. 28		17	
Cuttock	Apr. 7–Apr. 28		3	
Howrah district	Nov. 19–Apr. 28		119	
Hooghly district	do		45	
24-Parganas district	do		39	
Nadia district	do		4	
Bagalpur	Apr. 14–Apr. 28		4	
Khulana district	do		1	
Dacca district	do			
Darbhanga district	do		21	
Durbungah	Apr. 7–Apr. 14		2	
Midnapore district	Jan. 28–Apr. 28		13	
Monghyr district	Feb. 11–Apr. 28		1,093	
Mozufferpore	Feb. 18–Apr. 28		18	
Murshidabad	Apr. 7–Apr. 14		1	
Rangoon district	Nov. 19–Apr. 14		1	Imported.
Patna	Nov. 19–Apr. 28		14,408	
Puri	Apr. 7–Apr. 28		2	
Saran district	Nov. 19–Apr. 28		1,163	
Shahabad district	Nov. 19–Apr. 7		1	
Tipperah district	do			
Singbhoom district	do			
Balasore district	Nov. 19–Apr. 28		3	Imported and suspected.
Rajputana	Nov. 19–Apr. 7		7	Do.
Jeypore	Apr. 1–Apr. 14		1	
Northwest provinces—				
Allahabad district	Jan. 1–Apr. 28		89	
Burma	Mar. 18–Apr. 7		1	
Japan:				
Osaka and Hiogo	Nov. 5–Jan. 26		52	
	Apr. 8–May 31	29	25	
Hiroshima	Nov. 5–Dec. 4	10	8	
Nagasaki	Dec. 9	1	1	
Kobe	Nov. 11–Jan. 26	20	19	
Fukuoka Ken	Nov. 5–Dec. 21		1	
Shidzuoka Ken	Dec. 21–May 31	30	9	
Wakayama Ken	do		1	
Kurdistan	Apr. 26	158	123	
Madagascar:				
Tamatave	Sept. 10–Dec. 16	51	42	
Mauritius	Jan. 25–Dec. 23	3,001	2,500	Estimated; year 1899.
	Apr. 19	1		
New Caledonia:				
Noumea	Dec. 17–Apr. 4	123	77	
Paraguay:				
Asuncion	Nov. 1–Jan. 15		14	
	Jan. 22–Feb. 16		6	
Persia:				
Djivanro	Mar. 29–June 6		180	
Philippine Islands:				
Malabon	Apr. 20	2		
Manila	Dec. 27–May 14	204	146	
San Pedro Mascote	Apr. 20			Reported present.

Plague, as reported to the Surgeon-General United States Marine-Hospital Service—Cont'd.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Portugal:				
Lisbon	Jan. 16	1		
Masan	Dec. 25	9	7	
Oporto	Aug. 16–Jan. 6	287	108	
Villa Nova de Gaya	Nov. 15	1		
South Africa:				
Cape Town	Mar. 6	4		On S. S. Kilburn from Rosario.
Spain:				
Tuy	Feb. 12	1		
Turkey:				
Smyrna	May 29	2	1	

SMALLPOX.

IN THE UNITED STATES.

During the second six months of 1899 smallpox was reported in 33 States and Territories of the United States, including the District of Columbia, with a total of 2,432 cases and 49 deaths, as compared with 30 States and Territories, 3,628 cases and 209 deaths, for the same period of 1898.

During the first six months of 1900 it was reported in 42 States and Territories, with 12,566 cases and 682 deaths, as compared with 40 States and Territories, 8,649 cases and 500 deaths, for the same period of 1899. During the fiscal year ended June 30, 1900, 14,998 cases of smallpox with 731 deaths, from 44 States and Territories, were reported.

During the two years ended June 30, 1900, 27,275 cases with 1,440 deaths—a mortality of 5.25 per cent—from 45 States and Territories and the District of Columbia, were reported. The disease was reported during this period from every State and Territory in the United States except Alaska, Arizona, the Dakotas, Nevada, Rhode Island, and Vermont, and at the time of this writing (August 16, 1900) it has been reported in Alaska, North Dakota, and Vermont.

The mortality given—5.25 per cent—is too high, because while it is probable that all the deaths were reported, it is quite certain that all the cases of the disease were not reported. The true mortality would be less than 5 per cent. A table for the two half years is given below:

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service.

JUNE 30 TO DECEMBER 29, 1899.

Places.	Date.	Cases.	Deaths.	Remarks.
Arkansas:				
Independence County	Oct. 26	1		
Jackson County	Oct. 27	19		
Jefferson County	Oct. 4	20		
Lee County	Sept. 1–Nov. 25	11	0	
Pope County	do	1		
Pulaski County	Oct. 4–Oct. 26	16		
Total for the State		68		
California:				
Oakland	June 3–June 24	2	0	
San Diego	June 1–June 30	0	0	
Total for the State		2	0	

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

JUNE 30 TO DECEMBER 29, 1899—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Colorado:				
Arapahoe County	Nov. 13	1		
El Paso County	Dec. 4	1		
Hinsdale County	Sept. 9	1		
Lake County	Sept. 18	2		
	Oct. 28	2		
	Dec. 5	1		
Las Animas County	Sept. 9	1		
	Oct. 28–Nov. 18	3		
Saguache County	Nov. 26	1		
Total for the State		13		
Connecticut:				
Stamford	July 20	1		
District of Columbia:				
Washington	Oct. 25–Dec. 22	14		
Florida:				
Jacksonville	July 1–Sept. 2	7		
Gadsden County	July 1–July 31	18		
Hillsboro County	April 10–July 10	35		
Jackson County	July 1–July 31	1		
Lake County	do	1		
Leon County	do	4		
Marion County	do	3		
Pasco County	do	5		
Total for the State		74		
Georgia:				
Brooks County	Aug. 5–Aug. 30	2	1	
Coffee County	Oct. 25	1		
Montgomery County	July 15–Aug. 10	31		
Savannah	June 3–July 27	7		
Total for the State		41	1	
Idaho:				
Latah County	July 1–Oct. 26	30		
Illinois:				
Cairo	Nov. 21–Dec. 23	10		
Chicago	June 20–July 1	3	0	
	Oct. 29–Dec. 12	8	1	
Dixon	Oct. 1–Dec. 3	125		
Total for the State		146	1	
Indiana:				
Allen County	Dec. 13	27		
Clark County	July 1–Sept. 30	6		
Elkhart County	do	1		
Evansville	Dec. 12	1		
Harrison County	do	1		
La Grange County	do	10		
Lake County	do	1		
Marion County	do	6		
Porter County	do	30		
Total for the State		83		
Iowa:				
Alvord	Nov. 1–Nov. 30			Smallpox reported.
Coalfield	do			Do.
Corning	do			Do.
Marathon	do			Do.
Northwood	do			Do.
Providence Township, Buena Vista County.	do			Do.
Silver Lake Township, Lyon County.	do			Do.
Sioux Rapids	do			Do.
Storm Lake	do			Do.
Kansas:				
Butler County	Oct. 2	5		
Crawford	Nov. 22	3	1	
Cowley County	Nov. 16–Dec. 2	21	2	
Columbus	Nov. 26–Dec. 2	1	0	

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

JUNE 30 TO DECEMBER 29, 1899—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Kansas—Continued.				
Kansas City	June 10–June 17	2		
	Oct. 1–Oct. 8	9	1	
Lawrence	Nov. 26–Dec. 2	6	0	
Peoria	do	1	0	
Pittsburg	do	5	0	
St. Marys	do	2	1	
Wellington	do	2	0	
Total for the State		57	5	
Kentucky:				
Davis County	Nov. 30	10		
Leslie County	Aug. 17	104		
Louisville	June 23–Sept. 23	17	0	
	Nov. 10–Dec. 21	2		
Owensboro	Nov. 30	2		
Total for the State		135		
Louisiana:				
Caddo	Dec. 3–Dec. 9	1		
Concordia Parish	Oct. 11	1		
East Carroll	Dec. 3–Dec. 16	26		
Iberia	Dec. 3–Dec. 9	1		
New Orleans	June 17–Aug. 26	14	0	
	Oct. 15–Nov. 25	9	0	
	Nov. 19–Dec. 23	39		
Shreveport	Oct. 15–Dec. 23	9	0	
Total for the State		100		
Maryland:				
Baltimore	Dec. 13	1	0	In quarantine.
Lonaconing	do	1		
Total for the State		2		
Massachusetts:				
Boston	June 27–Sept. 2	9	3	
	Dec. 16–Dec. 23	5		
Chelsea	Sept. 28–Dec. 23	30	4	
Everett	Aug. 7–Oct. 14	5	2	
Fall River	June 27–Sept. 9	2		
Lowell	Oct. 1–Oct. 7	1		
	Dec. 17–Dec. 23	2		
Melrose	Oct. 8–Oct. 14	1		
Roxbury	Aug. 30	3		
Total for the State		58	9	
Michigan:				
Benton Harbor	Oct. 23	10		
Detroit	Dec. 3–Dec. 9	5		
Grand Rapids	Oct. 22–Oct. 28	1		
Saginaw County	Sept. 10–Oct. 7			Smallpox reported.
Total for the State		16		
Minnesota:				
Albert Lea County	Sept. 29	30		
	Sept. 30–Oct. 14	22		
Austin	July 15–Aug. 1	1	0	
Duluth	do	1	0	
East Grand Forks	do	7	0	
Round Lake	Aug. 1–Aug. 31	10		
Total for the State		71		
Mississippi:				
Natchez	July 7–Nov. 18	22	0	
Pine Ridge	Aug. 16	8		
Total for the State		30		
Missouri:				
Barry County	April 6–July 20	35		
Lawrence County	do	1		
Lincoln County	do	9		
Scott County	do	25		
Springfield, Green County	Sept. 28–Dec. 20	323	4	

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

JUNE 30 TO DECEMRER 29, 1899—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Missouri—Continued.				
St. Francois County	April 6–July 20	30	2	
Stoddard County	do	35		
St. Louis	June 19–June 26	4		
	Dec. 11–Dec. 17	2		
Total for the State		464	6	
Montana:				
Butte	Sept. 30–Oct. 18	2	1	
Great Falls	Sept. 18	6		
Total for the State		8	1	
New York:				
New York City	Oct. 15–Dec. 23	13	1	
North Carolina:				
Bertie County	May 1–May 31	4		
	July 1–July 31	1		
Burke County	do	22		
Caldwell County	do	3		
Caswell County	do	6		
Catawba County	do	1		
Charlotte	June 30	1		
Chowan County	May 1–May 31	1		
Currituck County	do	6		
	July 1–July 31	2		
Forsyth County	do	2		
Gates County	May 1–May 31			Smallpox reported.
	July 1–July 31	12		
Halifax County	do	7		
Hertford County	May 1–May 31	4		
	July 1–July 31	2		
McDowell County	May 1–May 31	1		
Moore County	do	1		
Nash County	do			Do.
Northampton	do	1		
Richmond County	July 1–July 31	1		
Rockingham	May 1–May 31	14		
Rowan	do	1		
	July 1–July 31	1		
Wake	May 1–May 31	4		
Wayne	do	7		
Total for the State		105		
Ohio:				
Adams Township, Clinton County.	Oct. 1–Dec. 4	1		
Addyston	do	1		
Akron	do	1		
Bloom Township, Fairfield County.	do	7		
Bristol Township, Trumbull County.	do	1		
Canton	do	1		
Cedarville	do	4		
Children's Home, Montgomery County.	do	25		
Cincinnati	do	11		
Cleveland	do	43		
	Dec. 17–Dec. 23	1		
Concord Township, Delaware County.	Oct. 1–Dec. 4	12		
Columbus	do	1		
Danbury Township, Ottawa County.	do	8		
Dayton	do	3		
Delaware	do	34	1	
Delaware Township, Delaware County.	do	15		
East Liverpool	do	1		
Findlay	do	1		
Glenville	do	1		
Greenfield Township, Fairfield County.	do	5	1	
Green Township, Hamilton County.	do	1		
Hamilton	do	6	1	

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

JUNE 30 TO DECEMBER 29, 1899—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Ohio—Continued.				
Jamestown	Oct. 1-Dec. 4	2		
Lancaster	do	18		
Loveland	do	1		
Margarette Township, Erie County.	do	4		
Newburg	do	1		
New Carlisle	do	1		
New London Township, Huron County.	do	6		
Niles	do	14		
Prairie Township, Franklin County.	do	1		
Radnour Township, Delaware County.	do	3		
Rochester	do	1		
Springfield	do	12		
Sunbury	do	2		
Toledo	do	1		
Washington Township, Hocking County.	do	1		
Xenia Township, Greene County.	do	2		
Youngstown	do	1		
Total for the State		255	3	
Oregon:				
Astoria	Oct. 11	1		
Portland	June 13-July 19	6	0	
Umatilla County	Sept. 7			Smallpox reported.
Total for the State		7		
Pennsylvania:				
Allegheny County	June 3-Dec. 23	41		
Belle Vernon	June 3-June 26	1		
Brownsville Township	do	34		
Cambria County	June 3-Nov. 4	28		
Fulton County	Sept. 27-Nov. 4	10		
Indiana County	do	1		
Jefferson County	do	3		
Philadelphia	Oct. 22-Nov. 4	10		
Somerset County	June 3-Aug. 5	10		
Washington County	June 3-June 26	11		At Penn Station, several.
Westmoreland County	June 3-Nov. 4	27		
Total for the State		176		
South Carolina:				
Greenville	Dec. 3-Dec. 23	6		
Tennessee:				
Memphis	Sept. 23-Nov. 4	6		
Nashville	Nov. 19-Dec. 23	9		
Total for the State		15		
Texas:				
Beaumont	Aug. 2	8		
Brazos County	Aug. 4-Aug. 18			
Brenham, Washington County.	do	1		
Candelaria	Sept. 29	1		
Canaigre	do	1		
Dallas	Aug. 4-Aug. 18	1		
El Indie	Sept. 29	7		
Galveston	Oct. 20	1		
Presidio	July 28	40		
Palno	Sept. 29	2		
Pilares	do	15		
Ruidoso	do	4		
Sabine Pass	July 15	2		
San Antonio	Aug. 1-Aug. 31	1	1	
	Nov. 1-Nov. 30	1	1	
Shafter	July 28-Aug. 5	25		
Taylor	Aug. 4-Aug. 18	1		
Sixteen places	Aug. 5-Sept. 9	79	4	
Total for the State		190	6	

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

JUNE 30 TO DECEMBER 29, 1899—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Utah:				
Salt Lake City	Dec. 17–Dec. 23	1		
Virginia:				
Alexandria	Oct. 20	1		
Bristol	Oct. 1–Oct. 13	30		
Cape Charles	July 8	1		
Danville	June 14–July 6	30	0	
Norfolk	June 22–Aug. 4	19	1	
	Oct. 19–Nov. 8	5		
	Dec. 18	1		
Portsmouth	June 22–Dec. 23	74	14	
Richmond	Dec. 22	1	1	
Appomattox County	Sept. 1–Sept. 30			Several cases.
Augusta County	July 1–July 31	1		
Brunswick County	do	2		
Buckingham County	Sept. 1–Sept. 30	2		
Charles City County	Aug. 1–Aug. 31	8		
Dinwiddie County	Sept. 1–Sept. 30	6		
Gloucester County	July 1–July 31			Smallpox reported.
Goochland County	do			Do.
Greenesville County	do			Do.
	Sept. 1–Sept. 30	1		
Hanover County	Aug. 1–Aug. 31	1		
Isle of Wight County	do	6		
Mathews County	do	3		
Mecklenburg County	do			Do.
Norfolk County	do			Do.
Orange County	do	2		
Pittsylvania County	do			Smallpox prevalent.
Princess Anne County	July 1–July 31	2		
Prince George County	Aug. 1–Aug. 31	1		
Scott County	July 1–July 31			Several cases.
Surry County	Aug. 1–Aug. 31	9		
Sussex County	do	14		
	Sept. 1–Sept. 30	3		
Wise County	Aug. 1–Aug. 31	2		
	Sept. 1–Sept. 30	7		
Total for the State		232	16	
Washington:				
Almira	July 3	9		
Orcas Island	Oct. 20–Nov. 14	11	1	
Seattle	July 19–Nov. 4	11		
Spokane	July 8–Aug. 19	7		
Tacoma	July 23–Aug. 5	2		
Walla Walla	June 29	8		
Total for the State		48	1	
West Virginia:				
Benwood	July 5	1	0	
Elkhorn, McDowell County.	Aug. 19	1		
Total for the State		2		
Grand total		2,463	50	

DECEMBER 29, 1899, TO JUNE 29, 1900.

Alabama:				
Huntsville	Apr. 4	19	0	
Jefferson County	Jan. 1–Feb. 5	86		
Mobile	Jan. 2–May 19	76	1	
Whistler	Jan. 1–Feb. 3	2		
Total for State		183	1	
Arkansas:				
Arkansas County	Feb. 2			Smallpox reported.
Benton County	do			Do.
Columbia County	do			Do.
Conway County	do			Do.
Crittenden County	do			Do.

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Arkansas—Continued.				
Drew County	Feb. 2			Smallpox reported.
Faulkner County	do			Do.
Fulton County	do			Do.
Green County	do			Do.
Independence County	do			Do.
Jackson County	do			Do.
Jefferson County	do			Do.
Lawrence County	do			Do.
Lincoln County	do			Do.
Logan County	do			Do.
Perry County	do			Do.
Phillips County	do			Do.
Prairie County	do			Do.
Pulaski County (Little Rock).	Oct. 1–Apr. 21	337	18	
Saline County	Feb. 2			Do.
Scott County	do			Do.
White County (Searcy)	Feb. 2–Feb. 21	40		Do.
Woodruff County	do			Do.
Total for State		377	18	
California:				
Los Angeles	Jan. 18	3		
Colorado:				
Arapahoe County	Jan. 7–June 9	54		
Archuleta County	May 1–June 4	3		
Boulder County	do	1		
Conejos County	Apr. 25	1		
Douglas County	Apr. 2–May 1	4		
El Paso County	Feb. 12–June 4	14		
Fremont County	May 1–June 13	9		
Huerfano County	Dec. 29–Jan. 26	6		
Lake County	Jan. 17–Feb. 28	2		
Las Animas County	Feb. 4–June 1	23		
Lincoln County	Dec. 15–Jan. 1	2		
Logan County	Apr. 2–June 4	10		
Mesa County	May 26–June 4	2		
Otero County	Apr. 6–May 19	3		
Pueblo County	Apr. 13–May 19	3		
Rio Grande County	Feb. 27–Mar. 19	17	2	
Saguache County	Dec. 28	1		
San Miguel County	Apr. 24–May 19	2		
Weld County	Feb. 23–May 9	9		
Total for State		166	2	
Delaware:				
Wilmington	Jan. 7–June 9	1	1	
District of Columbia:				
Washington	Jan. 12–June 16	38	5	
Florida:				
Jacksonville	Jan. 7–June 2	25		
Pensacola	Jan. 16–Feb. 9	2		
Total for State		27		
Georgia:				
Appling County	Jan. 20	1		
Blackshear	Jan. 11	16		
Brunswick	Dec. 19–Mar. 1	112	2	
Darien	Jan. 17	2		
Jesup	Jan. 20	2		
Lee County	May 8	1		
Liberty	Jan. 20	8		
McIntosh County	do			Several cases.
Polk County	Apr. 28	30		
Rome	May 29	1		
Savannah	Jan. 20	1		
Warren County	May 8	1		
Wayne County	do	3		
Waycross	Jan. 1–Feb. 18	23		
Total for State		201	2	

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Illinois:				
Aurora	Feb. 11–Apr. 7	38		
Cairo	Dec. 24–June 9	107	6	
Chicago	Dec. 27–June 23	47	1	
Danville	Feb. 4–Feb. 10	1		
Rockford	Feb. 11–Feb. 17	2		
Springfield	Jan. 21–Apr. 13	3		
Alexander County	Dec. 1–Feb. 28			Smallpox reported.
Bond County	do			Do.
Boone County	do			Do.
Bureau County	do			Do.
Christian County	do			Do.
Clinton County	do			Do.
Cook County	do			Do.
Cumberland County	do			Do.
DeWitt County	do			Do.
Douglas County	do			Do.
Fulton County	do			Do.
Gallatin County	do			Do.
Hamilton County	do			Do.
Hardin County	do			Do.
Henderson County	do			Do.
Henry County	do			Do.
Iroquois County	do			Do.
Jackson County	do			Do.
Jefferson County	do			Do.
Johnson County	do			Do.
Lee County	do			Do.
Livingston County	do			Do.
Macon County	do			Do.
Macoupin County	do			Do.
Madison County	do			Do.
Massac County	do			Do.
McHenry County	do			Do.
McLean County	do			Do.
Morgan County	do			Do.
Ogle County	do			Do.
Perry County	do			Do.
Piatt County	do			Do.
Pope County	do			Do.
Pulaski County	do			Do.
Randolph County	do			Do.
Rock Island County	do			Do.
Saline County	do			Do.
Sangamon County	do			Do.
St. Clair County	do			Do.
Schuyler County	do			Do.
Shelby County	do			Do.
Union County	do			Do.
Whiteside County	do			Do.
Williamson County	do			Do.
Winnebago County	do			Do.
Total for State		198	7	
Indian Territory:				
Choctaw Nation	Dec. 18	75		
Indiana:				
Adams County	Dec. 1–Dec. 31	1		
Clay County	Jan. 17			Many cases.
Dearborn County	Dec. 1–Dec. 31	1		
Evansville	Dec. 24–June 16	107		
Gibson County	Mar. 31			Smallpox reported.
Greene County	do			Do.
Indianapolis	Jan. 15–June 2	34		
Jackson County	Mar. 31			Do.
Jennings County	Dec. 1–Dec. 31	4		
Madison County	do	14		
Marion County	Mar. 31			Do.
Posey County	Dec. 1–Dec. 31	26		
Washington County	Mar. 31			Do.
Total for State		187		February 28, 750 cases in the State. March 31, 56 cases in the State.
Iowa:				
Des Moines	Feb. 1–May 31	25	0	
Ottumwa	Apr. 15–Apr. 21	1		
Polk County	Feb. 8	16	0	
Total for State		42		

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Kansas:				
Anthony	Jan. 1–Jan. 31	2		
Arkansas City	do	9	1	
Atchison County	Jan. 29–Feb. 28	11		
Barber County	Feb. 1–Apr. 30	95	1	
Burlingame	Mar. 1–Mar. 31	5		
Burns, Marion County	Jan. 1–Mar. 31	4		
Butler County	Mar. 1–Mar. 31	1		
Centralia	Jan. 1–Mar. 31	2		
Cherokee County	Feb. 1–Apr. 30	51	5	
Chautauqua County	Feb. 1–Feb. 28	2		
Dickinson County	Apr. 1–Apr. 30	10		
Douglas County	Mar. 1–Apr. 30	39		
Emporia	Feb. 1–Mar. 31	10		
Florence	Mar. 1–Mar. 31	1		
Franklin County	Mar. 1–Apr. 30	31		
Galena and Cherokee County.	Feb. 1–Mar. 31	31		
Grantville	do	1		
Greenwood County	Mar. 1–Apr. 30	12		
Hartford	do	2		
Harvey County	Feb. 1–Mar. 31	8		
Holliday	do	1		
Horton	Apr. 1–Apr. 30	6		
Hutchinson	Mar. 1–Mar. 31	1		
Jefferson County	do	29	1	
Junction City	Feb. 1–Mar. 31	8		
Kansas City	Feb. 1–Apr. 30	46		
Kingman County	Jan. 1–Mar. 31	27	2	
Labette County	Jan. 1–Feb. 28	7		
Lawrence County	do	98		
Lyon County	do	100		
Manhattan	Apr. 1–Apr. 30	5		
Marion County	do	1		
Marshall County	Jan. 1–Feb. 28	2		
McCune	Mar. 1–Mar. 31	9		
McPherson	do	1		
Montgomery County	Jan. 1–Feb. 28	5		
Mound City	Mar. 1–Mar. 31	2		
Nemaha County	Jan. 1–Mar. 31	59		
Newton	Jan. 1–Apr. 30	11		
Neosho	Mar. 1–Mar. 31	5		
Osawatomie	Jan. 1–Apr. 30	11		
Osage County	Jan. 1–Apr. 30	8		
Oswego, Labette County	Nov. 5–Feb. 8	17	0	
Ottawa	Feb. 1–Apr. 30	23		
Paola	Jan. 1–Apr. 30	7		
Parsons County	Feb. 1–Mar. 31	9	2	
Pittsburg	Mar. 1–Mar. 31	10		
Pottawatomie County	Apr. 1–Apr. 30	40		
Reno County	Feb. 1–Feb. 28	1		
Rice County	Apr. 1–Apr. 30	13		
Salina	Mar. 1–Apr. 30	60		
Saline County	Apr. 1–Apr. 30	8		
Sedgwick County	Feb. 1–Mar. 31	18		
Seneca	Mar. 1–Mar. 31	2		
Shawnee County	Jan. 1–Apr. 30	73		
Sumner County	do	121		
Summerfield	Mar. 1–Mar. 31	1		
Tonganoxie	Jan. 1–Jan. 31	64	1	
Topeka	Jan. 1–Mar. 30	113	4	
Wabaunsee County	Jan. 1–Feb. 28	29		
Waterville	Mar. 1–Mar. 31	2		
White Water, Butler County.	Jan. 1–Jan. 31	1		
Wichita	Jan. 1–June 9	128	1	
Woodson County	Jan. 1–Apr. 28	7		
Wyandotte County (outside Kansas City).	do	44		
Yale	Mar. 1–Mar. 31	33		
Total for State		1,593	18	
Kentucky:				
Covington	Jan. 14–June 23	172	2	
Lexington	Mar. 25–May 5	10		Extinct.
Louisville	Jan. 12–Feb. 22	10		
Paducah	Jan. 21	18		
Total for State		210	2	

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Louisiana:				
Ascension	Jan. 29–Feb. 3	5		
Assumption	do	8	4	
Avoyelles	Jan. 21–Jan. 27	7		
Caddo	Jan. 21–June 16	386	30	
Calcasieu	Jan. 7–Apr. 7	29	3	
Concordia	Jan. 29–Feb. 3			Several cases.
De Soto	Jan. 14–Jan. 20	1		
East Baton Rouge	Jan. 29–Feb. 3	5		
East Carroll Parish	Feb. 4–Apr. 14	3		
East Feliciana	Jan. 13	50		
Iberia	Dec. 20–Jan. 27	9		
Iberville	Dec. 31–Feb. 3	26	2	
Lafayette	do	130	1	
Lincoln	Jan. 21–Jan. 27	1		
Livingston	Jan. 13			Do.
Madison	Jan. 29–Mar. 3	12	1	
New Orleans	Dec. 31–June 16	1,371	418	
Ouachita	Jan. 29–Feb. 3	1		
Plaquemine	Jan. 21–Apr. 28	6	1	
Point Coupée	Dec. 31–Feb. 3	7		
Rapides	Jan. 21–Jan. 27	5		
Richland	Feb. 11–Feb. 17	5		
Shreveport	Dec. 24–June 16	259	19	
St. Charles	Jan. 29–Feb. 3	3		
St. James	Dec. 24–Jan. 17	21		
St. John	Jan. 29–Feb. 17	2		
St. Mary Parish	Apr. 1–Feb. 6	50		
St. Landry Parish	Sept. 1–Feb. 6	782	27	
Tangipahoa	Jan. 14–Feb. 24	11		
Tensas	Jan. 29–Feb. 3	35		
Vermilion	Jan. 21–Mar. 3	17		
Webster	Mar. 18–Mar. 24	2		
Total for State		3,249	506	
Maine:				
Portland	Mar. 18–June 9	10	2	
Maryland:				
Baltimore	Apr. 8–May 19	8	0	
Charles County	May 31	7		
Total for State		15		
Massachusetts:				
Boston	Dec. 30–May 19	7		
Chelsea	Dec. 25–Dec. 31		1	
Chicopee	May 6–May 12		1	
Fall River	May 19–June 23	19		
Lawrence	Jan. 28–Feb. 3	1		
Lowell	Dec. 24–June 23	10	1	
Malden	Jan. 14–Jan. 27	5		
Total for State		42	3	
Michigan:				
Detroit	Feb. 18–May 19	30	2	
Grand Rapids	Mar. 4–June 23	20		
Total for State		50	2	
Minnesota:				
Albert Lea	Jan. 1–Apr. 27	26	0	City.
Anoka County	Mar. 1–Apr. 27	48		
Butterfield	Jan. 1–June 16	13	0	Village.
Carlton County	Apr. 6–May 15	6		
Chippewa County	May 15–May 30	5		
Cottonwood County	May 29–June 16	1		
Dodge County	Apr. 1–May 15	2		
Dossel	May 29–June 16	11		
Duluth	Jan. 1–June 16	34	0	Do.
East Grand Forks	Apr. 6–Apr. 27	1		
Faribault County	do	1	0	
Fergus Falls	Apr. 6	2	0	City.
Freeborn County	Jan. 1–Apr. 27	36	0	
Goodhue County	Apr. 1–May 15	4		
Hennepin County	Apr. 6–May 28	12		
Houston County	May 29	6		
Janesville	Jan. 1–Mar. 1	1	0	Village.

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Minnesota—Continued.				
Jasper	May 29	2	....	
Jordan	Jan. 1–June 16	46	0	Village.
Kandiyohi County	Mar. 20–Apr. 27	5	....	
Le Sueur County	Mar. 1–Mar. 20	1	0	
Little Falls	May 15–June 16	10	....	
Martin County	Apr. 6–Apr. 27	3	....	
Meeker County	Apr. 6–June 16	4	....	
Minneapolis	Oct. 1–June 9	409	9	
New Richland	Jan. 1–Mar. 1[illegible]	1	0	Do.
Northfield	Jan. 1–May 29	40	1	City.
Owatonna	Jan. 1–Apr. 14	4	0	Do.
Pine County	May 29–June 16	7	....	
Pipestone County	May 15–June 16	6	....	
Pope County	Apr. 1–Apr. 27	8	....	
Ramsay County	Apr. 6–Apr. 27	1	....	
Rice County	Jan. 1–May 15	21	0	
Sheldon	May 29	4	....	
St. James	Jan. 1–May 15	18	0	Village.
St. Paul	Mar. 1–June 16	28	0	
Steele County	Jan. 1–Apr. 14	2	0	
Wadena County	May 15–June 16	5	....	
Watonwan County	Jan. 1–Mar. 31	9	0	
Waverly	May 29	4	....	
Wilkin County	Apr. 6–Apr. 27	6	....	
Worthington	May 15	1	....	
Wright County	Jan. 1–June 16	22	0	
Total for State		876	10	
Mississippi:				
Biloxi	June 1	1	....	
Greenwood	Jan. 21–Feb. 17	303	9	
Hinds County	Mar. 7	....	....	Epidemic prevails.
Total for State		304	9	
Missouri:				
Paris	Sept. 3–Feb. 5	37	4	
St. Louis	Dec. 19–May 20	89	1	
Total for State		126	5	
Montana:				
Butte	Feb. 7	100	....	
Nebraska:				
Dubois	Dec. 1–Feb. 15	2	2	
Guide Rock	do	7	0	
Liberty	do	13	0	
Omaha	Dec. 1–May 12	31	0	
Total for State		53	2	
New Hampshire:				
Manchester	June 9–June 16	11	....	
New Jersey:				
Union County	Jan. 1–Apr. 1	3	....	
Morris County	do	12	....	
Middlesex County	do	1	....	
Newark	June 10–June 16	6	....	
Hudson County	do	1	....	
Total for State		23	....	
New Mexico:				
Capitan	May 1	2	....	
Folsom	Mar. 21	4	....	
Total for Territory		6	....	
New York:				
Amsterdam	Dec. 25–Dec. 30	1	....	
Buffalo	Apr. 27–May 9	3	....	On S. S. John Oades.
New York City	Jan. 7–June 9	35	2	
New York Quarantine	May 11–May 26	....	1	On S. S. Lahn.
Total for State		39	3	

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
North Carolina:				
Alamance County	Jan. 1–Mar. 31	28		
Alexander County	Mar. 1–Mar. 31	3		
Beaufort	Dec. 27	1		
Bertie County	Jan. 1–Jan. 31	3		
Buncombe County	Mar. 1–Mar. 31	15		
Burke County	do	1		
Cabarrus County	Dec. 1–Mar. 31	6		
Cartaret County	do	1		
Charlotte	Dec. 1–May 30	32	0	
Chatham County	Nov. 1–Jan. 31	33		
Chowan County	Mar. 1–Mar. 31	6		
Caswell County	do	1		
Currituck County	Dec. 1–Jan. 31	7		
Davidson County	Dec. 1–Mar. 31	30	1	
Davie County	Jan. 1–Mar. 31	15	1	
Durham County	Mar. 1–Mar. 31	3		
Edgecombe County	do	2		
Gates County	Jan. 1–Mar. 31	15		
Greensboro	Jan. 15			Numerous cases.
Guilford County	Jan. 15–Mar. 31	144		
Halifax County	do	67		
Harnett County	Mar. 1–Mar. 31	5		
Henderson County	do	1		
Hertford County	Dec. 1–Mar. 31	11	1	
Iredell County	Mar. 1–Mar. 31	1		
Johnston County	Jan. 1–Mar. 31	2		
Mecklenburg County	Dec. 1–Mar. 31	24		
Moore County	Jan. 1–Mar. 31	68		
Nash County	Dec. 1–Mar. 31	14		
Newbern	June 6			Smallpox reported present.
New Hanover County	Jan. 1–Mar. 31	7		
Northampton County	Jan. 15–Jan. 31	10		
Orange County	Jan. 1–Mar. 31	21		
Person County	Mar. 1–Mar. 31	17		
Randolph County	Dec. 1–Mar. 31	13		
Richmond County	Jan. 1–Jan. 31	27		
Robeson County	Jan. 1–Mar. 31	28		
Rockingham County	Mar. 1–Mar. 31	120	6	
Rowan County	Jan. 15–Dec. 31	54		
Rutherford County	Mar. 1–Mar. 31			A number of cases.
Stanley County	Jan. 1–Mar. 31	8		
Stokes County	do	4		
Surry County	Dec. 1–Jan. 31	84		
Union County	do	5		
Vance County	Jan. 15–Dec. 31	1		
Warren County	Mar. 1–Mar. 31	1		
Wilmington	Jan. 25–Mar. 31	4		
Total for State		945	9	
Ohio:				
Allen County	Jan. 1–Apr. 18	7		
Ashtabula County	do	5		
Auglaize County	do	10		
Brown County	do	4		
Butler County	do	4		
Clark County	do	1		
Columbiana County	do	19	2	
Coshocton County	do	2		
Cuyahoga County—				
Brooklyn Township	May 19	2		
Cleveland	Jan. 1–June 23	434	6	
Dayton	Jan. 1–June 2	1		
Dover Township	Jan. 1–May 19	1		
Glenville	do	4		
Mayfield Township	do	14		
Newburg	do	7		
Lakewood	do	2		
Darke County	Jan. 1–Apr. 18	7		
Defiance County	do	8		
Delaware County	do	44		
Franklin County—				
Columbus	do	17		
Fulton County	do	2		
Geauga County	do	3		
Greene County	do	20	2	
Hamilton County—				
Cincinnati	do	46	1	
Hyde Park	do	1		

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Ohio—Continued.				
Hancock County	Jan. 1–Apr. 18	1		
Hardin County	do	3		
Henry County	do	96	3	
Huron County	do	9		
Lake County	do	2		
Licking County	do	1		
Lorain County	do	85		
Lucas County—				
Toledo	do	1		
Madison County	do	45		
Mahoning County—				
Youngstown	Jan. 1–June 16	12		
Medina County	Jan. 1–Apr. 18	2		
Morrow County	do	4		
Portsmouth	June 2	1		
Putnam County	Jan. 1–Apr. 18	6		
Stark County—				
Beach City	do	1		
Canton	do	10		
Trumbull County	do	18	1	
Union County	Jan. 1–Apr. 18	2		
Washington County	do	1		
Total for State		965	15	
Oklahoma Territory:				
Beaver County	Jan. 10			Smallpox reported.
Blaine County	do	1		
El Reno	Dec. 27	7	0	
Enid	do	4	0	
Kay County	do			Smallpox epidemic.
Logan County	do	10	0	
Noble County	Jan. 10			Smallpox reported.
Oklahoma City	Dec. 27	14	0	No cases at present.
Pawnee County	Jan. 10			Smallpox reported.
Shawnee	do	12	0	No cases at present.
Watonga	do	1	0	
Yukon	do	6	0	Do.
Total for Territory		55		
Oregon:				
Astoria	Feb. 12	1		
Portland	Jan. 23–June 15	11		
Total for State		12		
Pennsylvania:				
Allegheny County	Dec. 17–Apr. 21	14	2	
Beaver County	Jan. 1–Dec. 31	1		
Crawford County	Mar. 1–Mar. 31	2		
Lawrence County	do	3	1	
McKeesport	Mar. 21–Apr. 10	3	1	
Philadelphia	Dec. 24–June 23	17		
Pittsburg	May 6–June 16	8		
Susquehanna County	Mar. 1–Mar. 31	15		
Westmoreland County	do	3		
Total for State		66	4	
South Carolina:				
Greenville	Dec. 24–June 16	29		
Tennessee:				
Chattanooga	Jan. 22	9		
Columbia	Jan. 6	24		
Memphis	Nov. 4–June 2	582	5	
Mount Pleasant	Jan. 6	8		
Nashville	Dec. 24–June 23	32		
Total for State		655	5	
Texas:				
Aline	Feb. 7–Feb. 13	1		
Angelina County	Jan. 17–Jan. 23	1		
Austin	Jan. 1–Feb. 28	15		
Bastrop County	Jan. 17–Jan. 23	19		
Beaumont	Jan. 1–Jan. 30	3		

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Texas—Continued.				
Belleville County	Jan. 17–Jan. 23	2		
Boggy Fork	Feb. 7–Feb. 20	15		
Bonham	Jan. 1–Jan. 16			Smallpox reported.
Bowie County	Jan. 1–Feb. 28	5		
Brenham	do	5	1	
Brookshire	do	1		
Caddo Mills	Jan. 17–Jan. 23	1		
Caldwell	Feb. 14–Feb. 20	2		
Carmine	Jan. 24–Jan. 30	10		
Cass County	Jan. 1–Jan. 16	1		
Chapelhill	Feb. 7–Feb. 13	1		
Colmesneil	do	1		
Corpus Christi	May 4	1		
Corsicana	Feb. 7–Feb. 13	3		
Dallas	do	7		
Denison	Jan. 1–Jan. 16			Several cases.
Direct	Jan. 17–Jan. 23	6		
El Paso	Feb. 4	1		
Farmersville	do	25		
Fannin County	Feb. 4–Feb. 28	1	1	
Floydada	Jan. 1–Jan. 16	1		
Fort Stockton	do	4		
Gainesville	Feb. 7–Feb. 13	8		
Galveston	Feb. 10	2		
Garrett	Feb. 7–Feb. 13	7		
Gilmer	Feb. 22–Feb. 28	2		
Grand Saline	Feb. 14–Feb. 20	3		
Greenville	do	1		
Grimes County	Jan. 1–Apr. 8	195	3	
Hill County	Jan. 14–May 28	140	1	
Hillsboro	Feb. 22–Feb. 28	4		
Honeygrove	Jan. 1–Feb. 28	30		
Houston	Dec. 31–Jan. 27	12		
Hunt County	Feb. 7–Feb. 13	1		
Index	Jan. 1–Jan. 16	30		
Joaquin	Feb. 7–Feb. 13	3		
Leesburg	Feb 22–Feb. 28	2		
Malakoff	Feb. 14–Feb. 20	3		
Meadow	Jan. 17–Jan. 23	9		
Meridian	do	2		
Milano	Jan. 17–Jan. 30	8		
Mount Pleasant	Feb. 22–Feb. 28	10		
Navarro County	Jan. 1–Jan. 16	3		
Palestine	Feb. 7–Feb. 20	26		
Paris	Jan. 17–Jan. 30	6		
Prairiedell	Jan. 24–Jan. 30	13		
Port Sullivan	do	3		
Silverlake	Feb. 22–Feb. 28	4		
St. Jo	Feb. 14–Feb. 20	20		
San Antonio	Dec. 1–Apr. 30	7	1	
Sealey	Jan. 24–Jan. 30	2		
Seguin	Jan. 1–Jan. 30	3	1	
Smithville	Jan. 11–Jan. 30	14		
Taylor	Feb. 22–Feb. 28	2		
Temple	Jan. 11–Feb. 28	20	1	
Tyler	Jan. 11–Jan. 30	1		
Village Mills	Feb. 7–Feb. 13	1		
Washington County	Feb. 22–Feb. 28		2	
Wharton County	Feb. 14–Feb. 20		2	
Weimar	do	1		
Wolfe City	Jan. 17–Jan. 23	3		
Yoakum	Feb. 22–Feb. 28	7		
Total for State		740	13	
Utah:				
Morgan County	Apr. 16	1		
Salt Lake City	Dec. 1–June 16	74		
Ogden	Mar. 1–May 31	24	1	
Total for State		99	1	
Virginia:				
Alexandria	Feb. 14–Mar. 17	4		
Bath County	Mar. 13	7		
Caroline County	Mar. 31	1		
Danville	Mar. 21–Mar. 28	30		
Norfolk	Jan. 20	1		
Petersburg	Dec. 1–May 26	6		
Portsmouth	Dec. 24–Apr. 26	96	21	

Smallpox in the United States as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

DECEMBER 29, 1899, TO JUNE 29, 1900.

Places.	Date.	Cases.	Deaths.	Remarks.
Virginia—Continued.				
Richmond	Jan. 1–Feb. 28	35	0	
Roanoke	Jan. 1–Mar. 31	44	0	
Southampton	Apr. 27			Smallpox reported.
Total for State		224	21	
Washington:				
Centralia	Feb. 26	150		
Pierce County	Feb. 7	1		
Seattle	Feb. 15–June 1	7	0	
Spokane	Jan. 1–June 16	376	2	
Tacoma	Feb. 12–June 16	31	1	
Wallawalla	Feb. 21	2		
Total for State		567	3	
West Virginia:				
Calhoun County	Jan. 31			Cases reported.
Fayette County	Jan. 26	18		
Gilmer County	Jan. 31			Do.
Harrison County	do	5		
Lewis County	Jan. 31–Mar. 1	25		
McDowell County	Jan. 31	1		
Mingo County	do			Do.
Monongalia County	Jan. 26	1		
Upshur County	Dec. 1–Mar. 1	35	1	
Webster County	Feb. 8	10		
Wheeling	June 12	1		
Total for State		96	1	
Wisconsin:				
Douglas County	Apr. 14–May 22	8		
Door County	May 22	8		
Eau Claire County	Mar. 26–May 22	12		
Kewaunee County	May 22	6		
La Crosse County	Mar. 21	6		
Lafayette County	Feb. 3	1		
Lemonweir	Jan. 24–Feb. 3	5	1	
Mauston	Jan. 24	1		
Pierce County	Apr. 14–May 22	9	1	
St. Croix County	do	97		
Superior	Apr. 1–Apr. 30	4		
Waupaca County	May 22	3	1	
Waushara County	Mar. 26	1		
Total for State		161	3	
Wyoming:				
Cheyenne	Apr. 16–May 19	8		
Rock Creek	May 26	22		
Sweetwater County	Mar. 13–May 26	33		
Uintah County	Mar. 3–May 26	27		
Total for State		90		
Grand total		12,803	673	

FOREIGN AND INSULAR.

During the year ended June 30, 1900, smallpox was reported in 39 islands and countries outside of the United States, as may be seen in the two tables given below—one for each half year. It will be seen from these tables that by far the largest number of deaths are reported from the cities of India, Bombay leading with 3,768 deaths from May 27, 1899, to May 15, 1900; then Calcutta, Karachi, Madras, and Ceylon. Next in the number of deaths reported comes Mexico, then Russia, Brazil, and so on down the list in a diminishing ratio.

It is interesting to note, as was done in the last annual report, the small number of deaths reported from Germany, where vaccination is thoroughly and systematically enforced, as compared with other countries in which the laws and regulations concerning vaccination are insufficient or badly enforced.

For example, during the year mentioned only 5 deaths from smallpox were reported in the German Empire, while in Belgium, 77; England, 125, and France, 211 deaths, respectively, were reported.

See the tables which follow.

Smallpox as reported to the Surgeon-General United States Marine-Hospital Service,

JUNE 30, 1899, to DECEMBER 29, 1899.

[Reports received from United States consuls through the Department of State and from other sources.]

Places.	Date.	Cases.	Deaths.	Remarks.
Arabia:				
Aden	May 1–May 31		1	
Argentina:				
Buenos Ayres	Apr. 1–Aug. 31		6	
Austria-Hungary:				
Budapest	June 16–June 24	2		
	July 31–Aug. 6	1		
Prague	Aug. 27–Nov. 25	55		
Belgium:				
Antwerp	June 10–Dec. 2	51	23	
Ghent	June 23–July 1		1	
	Nov. 5–Nov. 11		2	
Brazil:				
Bahia	June 3–Sept. 16	5		
Ceara	Oct. 1–Oct. 31		1	
Rio de Janeiro	May 19–Nov. 3	1,664	916	
Canary Islands:				
Santa Cruz de Teneriffe	Sept. 17–Sept. 23		2	
China:				
Fuchau	Sept. 16			Smallpox reported always prevalent.
Hongkong	May 6–June 10	2	1	
	Oct. 28–Nov. 4	1	1	
	July 12–July 24	2		
Colombia:				
Baranquilla	Nov. 27–Dec. 2	5		
Panama	July 26–Aug. 1	1	1	
Cuba:				
Casilda	Aug. 1–Aug. 31		1	
Habana	June 30–July 6	5	1	
Sancti Spiritu	June 7			Reported present.
Santiago	July 1–July 8	1		
Egypt:				
Alexandria	Aug. 20–Aug. 26		1	
Cairo	May 20–Nov. 4		31	
England:				
Bradford	Oct. 30–Nov. 25	3		
Hull	Mar. 1–Dec. 5	700	105	
Liverpool	June 10–June 17		1	
London	June 10–Aug. 5	5	1	
	Nov. 12–Dec. 9	4		
France:				
Nantes	June 1–June 30	1		
Marseilles	June 25–July 2	1		
	Oct. 1–Nov. 30	530	109	
Paris	July 2–July 8		1	
Germany:				
Dusseldorf	Sept. 3–Sept. 9		1	
Gibraltar	June 4–June 21	1		
	Oct. 23–Nov. 5	2		
Greece:				
Athens	June 10–Dec. 2	191	47	
India:				
Bombay	May 27–Nov. 21		159	
Calcutta	May 13–June 10		2	
Ceylon	Nov. 5–Nov. 11	1	1	
Madras	May 20–Nov. 10		16	
Italy:				
Messina	Oct. 29–Nov. 4		1	
Japan:				
Osaka and Hiogo	Nov. 12–Nov. 18	1		
Tamsui, Formosa	Apr. 1–Aug. 31	246		
Madagascar:				
Tamatave	Sept. 10–Sept. 16			Smallpox reported.

Smallpox as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

JUNE 30, 1899, TO DECEMBER 29, 1899—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Mexico:				
C. P. Diaz	Nov. 1–Dec. 10	1	1	
Chihuahua	July 16–Dec. 16		79	
City of Mexico	June 4–Nov. 19	122	75	
Cuchio	Sept. 29	25		
Monclova	Nov. 1–Dec. 10	6	1	
Mulette	Sept. 29	12		
Nuevo Laredo	July 1–Aug. 26		3	
Ojenega	Sept. 29	50		
Pilares	do	15		
Progreso	Oct. 7–Dec. 10	50		
Sabinas	Nov. 1–Dec. 10	17	3	
San Antonio	Sept. 29	20		
San Felipe	Oct. 7–Dec. 10	122	18	
San Francisco	Sept. 29	5		
San Juan	Oct. 7–Dec. 10	107		
Suarez	Oct. 7	40		
Tuxpam	Oct. 24–Oct. 30		8	
Vado de Piedras	Sept. 29	20		
Vera Cruz	Nov. 3–Dec. 21		10	
Netherlands:				
Rotterdam	July 15–July 22	1		
Ontario:				
Essex County	Oct. 30–Dec. 16	182	0	
Kent County	Nov. 28–Dec. 16	2	0	
Quebec:				
Kamouraska County	Aug. 21–Dec. 20	236	0	
Matane	Dec. 16–Dec. 20	2	0	
Russia:				
Khabarovsk	Apr. 1–Apr. 30	1		
Moscow	May 27–Nov. 18	119	59	
Odessa	June 10–Dec. 2	61	16	
Riga	June 1–June 30		22	
	Sept. 30		11	
St. Petersburg	June 3–Dec. 2	182	48	
Warsaw	June 3–Nov. 25		56	
Scotland:				
Glasgow	June 3–June 17	1	1	
Spain:				
Barcelona	Aug. 1–Aug. 31		15	
Corunna	Nov. 19–Dec. 9	6	3	
Valencia	Aug. 16–Sept. 15	5	1	
Straits Settlements:				
Singapore	Apr. 1–Oct. 18		95	
Turkey:				
Beireut	June 27–July 1	1		
Constantinople	Oct. 31–Nov. 6	1		
Erzeroum	July 8–Oct. 14	21	1	
Smyrna	May 27–Dec. 3		15	
Uruguay:				
Montevideo	May 27–Oct. 7	4		

DECEMBER 29, 1899, TO JUNE 29, 1900.

Places.	Date.	Cases.	Deaths.	Remarks.
Argentina:				
Buenos Ayres	Oct. 1–Feb. 28		10	
Austria-Hungary:				
Prague	Dec. 30–June 2	168	1	
Belgium:				
Antwerp	Dec. 3–June 2	88	34	
Ghent	Jan. 14–May 26		17	
Brazil:				
Pernambuco	Dec. 1–Dec. 15		5	
Rio de Janeiro	Nov. 4–May 11		594	
British Columbia:				
Grand Forks	Mar. 7–Apr. 10	3	0	
Nakusp	Feb. 28–Apr. 10	1	0	
Nelson City	Feb. 16–Apr. 10	2	0	
Nelson District	Feb. 8–Apr. 10	1	0	
Rossland	Feb. 9–Apr. 10	5	0	
China:				
Hongkong	Dec. 17–Dec. 23	1	1	
	Mar. 4–May 19	17	3	
Colombia:				
Barranquilla	Jan. 21–Mar. 31		6	
Cuba:				
Casilda	Jan. 2–Jan. 22	34	0	
Habana	Jan. 15	2		On S. S. Santanderino.

Smallpox as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

DECEMBER 29, 1899, TO JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Egypt:				
Cairo	Nov. 19–May 20		136	
England:				
Birmingham	Mar. 4–Mar. 10	2		
Leeds	Jan. 29–Feb. 3	1		
Liverpool	Jan. 7–June 9	116	14	
London	Dec. 10–June 9	120	4	
Southampton	Jan. 1–June 9	41		
Formosa:				
Tamsui	Oct. 1–Dec. 31	23		
	Jan. 1–Jan. 31	31		
	Mar. 1–Mar. 31	143	2	
France:				
Lyons	Dec. 17–May 26		32	
Marseilles	Nov. 1–Mar. 31	225	25	
Nice	Dec. 19–June 9	53	13	
Paris	Jan. 14–June 9		22	
Rheims	Mar. 4–Mar. 10		4	
St. Etienne	May 1–May 15	4	1	
St. Nazaire	Mar. 8	32	4	
Germany:				
Hamburg	Jan. 1–May 12	6	1	
Königsberg	Dec. 17–Feb. 3	9	3	
Stettin	May 20–May 26	1		
Gibraltar	Dec. 4–June 10	73	7	
Greece:				
Athens	Dec. 3–June 9	111	45	
Hungary:				
Budapest	Dec. 18–Dec. 24	1		
India:				
Bombay	Nov. 15–May 15		3, 069	
Calcutta	Nov. 26–Apr. 28		301	
Ceylon	Dec. 10–Jan. 27		5	
Madras	Jan. 13–May 18		12	
Kurrachee	Jan. 15–May 20	310	141	
Italy:				
Leghorn	May 5–May 12	1		
Milan	Dec. 17–Apr. 28	5		
Palermo	Mar. 18–Mar. 24		1	
Rome	Mar. 25–Apr. 7		2	
Venice	Apr. 15–Apr. 21		1	
Japan:				
Nagasaki	Jan. 1–Apr. 30	4		
Yokohama	Nov. 19–Mar. 3	2		
Korea:				
Seoul	Jan. 21–Feb. 17	2	1	
Manitoba:				
Winnipeg	Apr. 1–May 31	44	8	
Mexico:				
Chihuahua	Dec. 24–June 9		73	
City of Mexico	Dec. 18–Apr. 29	298	166	
C. Porfirio Diaz	Feb. 11–Mar. 7	7	2	
Guadalajara	Apr. 21	150		
Monclova	Mar. 17	150		
Nuevo Laredo	Jan. 1–Dec. 31		16	
Vera Cruz	Dec. 22–June 16		94	
New Brunswick:				
Cambellton	Jan. 22–Feb. 3	55	0	
Gloucester County	Jan. 25–Apr. 15	55	0	
Madewaska	Apr. 15	3		
Moncton	Jan. 19			Cases reported.
Northumberland County	Feb. 1–Apr. 15	1	0	
Restigouche County	Jan. 16–Apr. 15	155	0	
Westmoreland County	Jan. 18–Apr. 15	3	0	
Woodstock	Apr. 28			Smallpox reported.
Ontario:				
Amherstberg	Feb. 11–Mar. 3	4		
Brant County	Jan. 27–Feb. 24	1	0	
Essex County	Oct. 30–Apr. 18	240	0	
Frontenac County	Jan. 14–Feb. 24	1	0	
Kent County	Nov. 28–Jan. 14	2	0	
Lambton County	Dec. 30–Feb. 24	4	0	
Lanark County	May 18–June 1	6		
Middlesex County	Dec. 6–Feb. 24	4	0	
Thunder Bay County	May 1–June 1	16	0	
Renfrew County	Apr. 28–May 18	1	0	
Sault Ste. Marie	May 23–June 1	4		
Simcoe County	May 18–June 1	2		
York County	Feb. 13–Feb. 24	17	0	

Smallpox as reported to the Surgeon-General United States Marine-Hospital Service—Continued.

DECEMBER 29, 1899, to JUNE 29, 1900—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
Philippine Islands:				
Manila	Feb. 4–Apr. 7	26	1	
Porto Rico:				
Ponce	Mar. 11–June 2	5		
Quebec:				
Bonaventure County	Oct. 16–June 4	313	3	
Kamouraska County	Aug. 18–Apr. 17	288	1	
Matane County	Dec. 16–Apr. 17	5	1	
Montreal	Jan. 16–Apr. 17	1		
Quebec County	Apr. 15–May 15	7		
Rimouski County	May 15	86		
Russia:				
Moscow	Nov. 26–May 26	107	29	
Odessa	Dec. 3–June 2	202	45	
Riga	Nov. 1–Nov. 30		15	
	Jan. 1–Jan. 31		38	
	Mar. 1–Mar. 31		21	
St. Petersburg	Dec. 3–June 2	739	142	
Vladivostock	Nov. 1–Nov. 30	3		
Warsaw	Nov. 26–May 26		79	
Scotland:				
Edinburgh	Jan. 14–Jan. 20	1		
Glasgow	Apr. 8–June 15	183	6	
Leith	Jan. 1–Jan. 6	1		
Spain:				
Cadiz	Oct. 1–Oct. 31		5	
Corunna	Dec. 3–June 9		24	
Galicia	May 5			Many cases.
Madrid	Dec. 3–May 19		225	
Valencia	Mar. 18–May 19		6	
Straits Settlements:				
Singapore	Nov. 5–May 5		62	
Switzerland:				
Geneva	Jan. 7–Feb. 24	8		
Zurich	Jan. 7–Jan. 27	2	1	
Turkey:				
Constantinople	Dec. 19–Mar. 26		3	
Smyrna	Dec. 4–Feb. 4		11	
Uruguay:				
Montevideo	Nov. 26–May 5	4		
Venezuela:				
Maracaibo	Apr. 8–Apr. 14		1	
Yucatan:				
Merida	May 22	1		

DIVISION OF INSULAR AND FOREIGN QUARANTINE AND IMMIGRATION.

REPORT OF THE DIVISION OF INSULAR AND FOREIGN QUARANTINE AND IMMIGRATION.

By R. M. Woodward,

Surgeon, United States Marine-Hospital Service, in Charge.

Cuba.

DETAIL OF MEDICAL OFFICER OF THE MARINE-HOSPITAL SERVICE AS CHIEF QUARANTINE OFFICER FOR CUBA.

On June 21, 1900, the medical officer in command of the Marine-Hospital Service, Habana, Cuba, was designated as chief quarantine officer for the island of Cuba, and the following instructions were issued:

INSTRUCTIONS RELATIVE TO PLACING ALL MARITIME QUARANTINE MATTERS IN CUBA UNDER ONE CHIEF QUARANTINE OFFICER.

1. One officer will be detailed as chief quarantine officer of the island of Cuba, in addition to his duties as quarantine officer of the port of Habana.
2. One officer will be detailed to Habana to act as executive officer and assume the duties of the chief quarantine officer when the latter is necessarily absent from his post.
3. Routine work at each port is to be conducted by the officer in command of such port, without reference to the chief quarantine officer.
4. Any questions regarding administration, objections to holding vessels in quarantine, methods of disinfecting unusual cargoes, relations to military authorities, etc., are to be submitted to the chief quarantine officer for decision, the officer at the port in question submitting recommendations in each case. The officer will abide by the decision of the chief quarantine officer, the right of appeal to the Bureau, however, being recognized.
5. The chief quarantine officer will make periodical or special inspections of the various ports and will have authority to visit any port at any time upon the request of the officer there stationed.
6. Routine correspondence and reports will be forwarded direct from all ports to the Bureau. Propositions involving change in policy, new structures, or extensive repairs to same, nominations to original vacancies, promotions, or other unusual matters, will be transmitted through the chief quarantine officer.
7. The disbursing officer will be placed under the supervision of the chief quarantine officer. All estimates from the various ports will be transmitted to the disbursing officer through the chief quarantine officer. The disbursing officer will render a monthly report of expenditures and a monthly estimate to the Bureau through the chief quarantine officer.
8. The chief quarantine officer shall restrict the expenditures of each station proportionately to its importance and needs, in order that one station may not rashly expend money while another is not properly supplied with funds.
9. The chief quarantine officer will check all bills before payment by the disbursing officer and will require an explanation of large or unusual exigency bills.

On July 2, 1900, the chief quarantine officer for Cuba was directed to report to Maj. Gen. Leonard Wood, military governor of Cuba, for duty on his staff.

TRANSFER OF MARIEL QUARANTINE STATION, NEAR HABANA, TO THE MARINE-HOSPITAL SERVICE.

On November 14, 1899, Brig. Gen. Adna R. Chaffee, by direction of the military governor of Cuba, transferred the quarantine station at Mariel to the Marine-Hospital Service for temporary use on account of the arrival at Habana of a passenger vessel having smallpox on board. On January 27, 1900, the following was received from the Secretary of War confirming the Marine-Hospital Service in the possession of said Mariel quarantine station. A full description of this station will be found in the Public Health Reports, No. 51, December 22, 1899:

WASHINGTON, D. C., *January 27, 1900.*

SIR: Referring to your letter of December 27 last in which you request that an order be issued confirming to the United States Marine-Hospital Service the possession of the quarantine station at Mariel, Cuba, which was turned over to the United States Marine-Hospital Service by an order of the military governor of Cuba, dated November 14, 1899, and since which time the station in question has been virtually in charge of that Service, I have the honor to inform you that the military governor of Cuba having reported that there is no objection to placing the lazaretto, or quarantine station, at Mariel, in charge of the United States Marine-Hospital Service during the military occupation of Cuba by the United States, its transfer to your Department for the use of the United States Marine-Hospital Service is hereby confirmed and the military governor of Cuba has been so advised.

Respectfully,

ELIHU ROOT, *Secretary of War.*

The SECRETARY OF THE TREASURY.

REPORT OF TRANSACTIONS AT THE PORT OF HABANA, CUBA, FOR THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT OF TRANSACTIONS FROM JULY 1, 1900, TO SEPTEMBER 30, 1900, INCLUSIVE.

By Surg. A. H. GLENNAN, *Chief Quarantine Officer for Cuba.*

MARINE-HOSPITAL SERVICE,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Habana, Cuba, January 26, 1901.

SIR: I have the honor to submit the following report of the transactions at this station during the fiscal year ended June 30, 1900:

Surg. H. R. Carter assumed command of the station in the beginning of July, 1899, relieving Sanitary Inspector W. F. Brunner.

The yellow fever situation at this time did not portend a dangerous summer. But a few deaths from the disease had occurred and the cases were scattered along the water front, to which section of the city it was then mainly confined. The civilian nonimmune population was not large, and of the military forces many were returned to the United States, while the majority of the remaining regiments were in barracks at Camp Columbia outside of the city.

In a special report to the Bureau, July 24, 1899, Surg. H. R. Carter, presenting the mortality statistics of Habana, commented upon the small nonimmune population as a factor in the decreased mortality from yellow fever. Later in the season, as immigration increased and the American public became more venturesome, the infection gradually began to spread and continued far into the winter.

A case occurred, with a fatal result, among the marines who were in barracks at the naval landing (Machina). Later in the season several other cases occurred in these barracks with a very high mortality, finally compelling the evacuation of the premises.

The disease broke out in epidemic form at Santiago de Cuba, making it necessary to adopt stringent measures to prevent its introduction into Habana. Accordingly a medical officer was appointed at Batabanó, which place is practically the port of

Habana on the south side of the island, to inspect passengers from Santiago coming via Cienfuegos on the Menendez steamers. The names of all passengers, with a statement of their probable destination, were forwarded by this officer. Their baggage was at first disinfected on arrival in Habana, afterwards at Santiago prior to departure.

The condition of affairs at Vera Cruz, Mexico, as regards yellow fever, gave rise to much apprehension, and additional precautions were taken with the vessels and passengers from that port. Although baggage was disinfected at Vera Cruz, it was deemed advisable to disinfect all Mexican baggage whether destined for Habana or in transit for New York. Vessels for all Southern ports and for Porto Rico, with the exception of the Florida passenger steamers, were disinfected prior to departure from Habana.

During the month of July Passed Assistant Surgeon Rosenau inspected the ports on the south coast, and on the 23d of the month put into effect a system of inspection, detention, etc., for the protection of noninfected from infected ports in Cuba.

During the week ended August 4, 1899, six cases of yellow fever were reported in the city, more or less scattered, and one case taken off the brigantine *Lista*.

The history of the infection of a Norwegian and two British steamers during this summer is of special interest.

The master of the British steamship *North Anglia*, lying at a coal dock at Casa Blanca, was taken sick with yellow fever, dying within forty hours. Twelve hours after the steward of the vessel was taken sick, but recovered. The vessel was ordered alongside the *Protector* and disinfected. No other cases occurred on board. Dr. Brunner, after an inspection of the situation, decided that an old hulk then undergoing reconstruction at the same wharf and lying in juxtaposition to the stern of the *North Anglia* (whose cabin was located aft) was responsible for the infection. Inquiry developed the fact that the hulk was an old derelict bark, towed in, and for two years had been allowed to lie partially submerged in the section of the harbor known as "Dead Man's Hole." Just prior to the Spanish evacuation the hulk was purchased by an enterprising coal dealer and taken to Casa Blanca, where her decks were ripped out in order to convert her into a coal barge with a steam hoisting apparatus. A short time after the *North Anglia* incident the Norwegian steamer *Krim* discharged coal at the same wharf and next to the old hulk. The steamer afterwards arrived in New York with a case of yellow fever. The hulk was then ordered to the *Protector* for disinfection, and for a time lay in the open bay. During this interval several steamers discharged coal at the Casa Blanca wharf and escaped infection. The barge was again towed to the wharf for the completion of the work. The British steamship *Sutherland* discharged coal at the wharf alongside of her and then sailed for Santiago. The master was taken sick with the disease and died the day after arrival in Santiago. The hulk was again disinfected and this time quarantined in midstream and any further work of destruction on her prohibited until November 15. Since then no other cases of yellow fever have occurred on any tramp steamer discharging at the Casa Blanca dock.

The source of infection in these three interesting cases is obvious. The destructive work conducted on this decaying vessel easily spread infection; no one had lived on the hulk, and of course no sickness occurred. After her reconstruction she was thoroughly disinfected, and although she has since tendered coal to many vessels no other cases have been traced to her in the harbor.

A case of yellow fever was concealed and treated by the master of the cattle barge *Henry L. Griggs*. Medical aid was called in when the sailor was moribund.

In September a complete disinfecting plant was erected upon the Caballeria wharf, directly in front of the post-office, for the disinfection of mail and express matter. Afterwards much of the baggage for New York was disinfected at this plant in order to relieve the pressure on the *Protector*.

On the 11th the Ward Line steamer *Vigilancia* arrived from New York with a case of yellow fever, in the person of Sister Maria Angelus, from France en route for Mexico. She was taken sick on the day of arrival, and died six days later. Inference made: That the vessel was infected. Upon her return to Mexico she was disinfected.

On December 2, 1899, the French steamship *La Navarre* arrived with 800 souls on board and two cases of smallpox. The exposed steerage passengers were quarantined upon two schooners in the bay for fourteen days.

In November, upon cable advice from the writer at San Juan, Porto Rico, that the "Spanish trans-Atlantic steamer *Buenos Aires* had a death from smallpox and was en route to Habana," at the request of P. A. Surg. G. M. Guitéras, the military authority transferred Mariel quarantine station to this Service. Upon arrival of the vessel the exposed passengers were transferred to this station and detained under observation fourteen days. No further cases developed.

Public Health Reports, vol. 14, No. 51, December 22, 1899, contains a description of the Mariel quarantine station. It is a valuable piece of property, well located for the purpose intended, has a good protected harbor, disinfecting barge can be anchored at short notice, and the disinfection of vessels at Tortugas can be readily supplemented.

The following summary gives the work performed at this station during the year:

BOARDING DEPARTMENT.

Number of vessels inspected and entered	912
Aggregate number of crews inspected on arriving vessels	40,163
Number of passengers inspected on arriving vessels	25,111

Of the vessels inspected and entered 409 were from United States ports.

Number of vessels inspected and cleared	1,250
Aggregate number of crews inspected	5,108
Number of vessels entered with sickness on board	40

Number of vessels arriving with quarantinable diseases, 9, and are as follows:

August, 1899, schooner *Mira*, from Vera Cruz, 1 case yellow fever.

September, 1899, steamship *India*, from Tampico, 1 case yellow fever.

October, 1899, steamship *Orange*, from Tampico, 2 cases yellow fever.

October, 1899, steamship *La Navarre*, from Corunna and Santander, 2 cases smallpox.

January, 1900, steamship *Santanderino*, from Corunna and Santander, 2 cases smallpox.

January, 1900, bark *Fortuna*, from Tampico, 1 case yellow fever.

March, 1900, steamship *La Navarre*, from Corunna and Santander, 2 cases smallpox.

May, 1900, steamship *Alfonso XIII*, from Corunna and Santander, 1 case smallpox.

June, 1900, steamship *Orizaba*, from Vera Cruz, 1 case of yellow fever.

From the above statement it will be seen that there was danger of the introduction of smallpox from ports in Spain and of yellow fever from Mexican ports.

PASSENGER DEPARTMENT.

Number of passengers inspected	38,921
Number of passengers vaccinated	1,063

The disinfecting barge *Protector* disinfected 146 vessels, including the large naval floating dry dock.

August, 1899	23	April, 1900	16
September, 1899	26	May, 1900	22
October, 1899	17	June, 1900	26
November, 1899	6		
December, 1899	2	Total	146
January, 1900	[a]3		

The total number of pieces of baggage disinfected by the barge *Protector*, 7913.

In conclusion, I beg to state that it is extremely difficult for an officer to submit a report of the year's work of his predecessor and do justice merely by taking data from cold records. It is impossible justly to appreciate the vast amount of sanitary work performed at this station, probably the largest and most important in the world, for many important details must go unrecorded.

I inclose the mortality statistics for the year.

Respectfully,

A. H. GLENNAN,
Surgeon U. S. Marine-Hospital Service,
Chief Quarantine Officer for the Island of Cuba.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

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[a] And the naval floating dry dock.

[Inclosure.]

Mortality statistics for the city of Habana for the fiscal year ended June 30, 1900.

	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Total.
Yellow fever	3	10	14	25	16	23	8	9	4	1	2	8	123
Typhoid	13	19	14	15	7	5	1	8	4	4	10	15	115
Malaria	63	52	26	27	13	18	14	22	25	18	30	39	347
Enteritis	72	59	33	48	37	47	44	25	31	32	56	70	554
Dysentery	4	3	0	2	2	0	1	0	0	1	0	1	14
Diphtheria	3	3	2	0	1	5	0	2	0	1	0	1	18
Smallpox	0	0	0	0	0	1	0	0	0	0	1	0	2
Scarlet fever	0	0	0	0	0	0	0	0	0	0	0	0	0
Measles	22	3	1	0	0	0	2	1	0	0	0	0	29
Beriberi	0	0	1	0	0	0	0	0	0	0	1	1	3
Pneumonia	31	28	23	19	14	35	37	47	5	26	26	20	311
Grip	0	0	1	1	1	0	0	4	11	14	3	1	36
Glanders	0	0	1	1	0	0	0	0	1	1	1	0	5
Tuberculosis	85	54	47	71	71	79	75	62	82	68	62	77	833
Starvation	0	0	1	0	0	0	0	0	0	0	0	0	1
Total deaths from all causes	660	613	488	486	486	508	478	472	561	477	473	521	6,223

MARINE-HOSPITAL SERVICE,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Habana, February 18, 1901.

SIR: I have the honor to submit the following supplemental report, giving the transactions at this station during the three months ended September 30, 1900:

At the beginning of the present fiscal year the writer was detailed as the chief quarantine officer for the island of Cuba, and as soon as possible a reorganization of the island quarantine system was undertaken, in order to bring the five divisions under the direction of one administrative officer, the headquarters being in Habana. This undertaking at once more than doubled the work at this station, necessitating certain changes in the clerical force and the renting of larger and more suitable offices for the proper administration of the new quarantine system.

The yellow fever situation was serious. Cases occurred in various parts of the city, involving districts where the wealthier classes resided, so that by the latter part of August the disease became widespread. In July 96 cases and 30 deaths were reported, while August gave us 219 cases and 50 deaths.

The disease broke out among the troops stationed at Pinar del Rio a short time prior to their departure for the United States. Eight or nine deaths occurred among them before suspicion was aroused, and the disease had gained considerable headway in the barracks and town before its true nature was recognized.

At Cienfuegos Assistant Surgeon Trotter removed a case of yellow fever from the transport *Sedgwick*, a private of the Tenth U. S. Infantry, stationed at Matanzas.

With suspicion directed against every locality, the weight of responsibility resting upon your quarantine officers can be readily appreciated.

Such a situation demanded a most careful passenger inspection, so that only those whose immunity was positively determined should be able to pass quarantine in the United States. During the season but two cases occurred en route to New York, both passengers holding red certificates for detention at quarantine.

Baggage disinfection was most thorough, heavily taxing the capacity of both plants. In July the baggage of all belonging to the Eighth U. S. Infantry and that of eight companies of the First U. S. Infantry, for the United States, and amounting to many thousand pieces, was disinfected. Personal effects of the officers and their families were disinfected at the shore plant, and the other baggage, including the soldiers' blanket rolls, kits, etc., was handled on the barge *Sanator*. Boxes containing quartermasters' papers and records, field desks, and other plain wood furniture were allowed to be shipped through to San Francisco sealed.

The handling of passengers' baggage for inspection and disinfection required systematizing in order to prevent confusion and losses. This department was completely systematized on the lines recommended by Acting Assistant Surgeons Dudley, McConnell, and Frick, who were detailed for this special work. Their report was forwarded to the Bureau. The system which has been adopted unfortunately can not give perfect execution until we can have a more suitable site for our shore plant, with larger building, so constructed as to be adapted to the work.

During the three months embraced in this report 10,220 pieces of baggage were disinfected.

The sanitary condition of vessels in the harbor has been under strict surveillance, and from time to time a ship-to-ship inspection of all craft in the harbor has been made. Less than a half dozen cases have occurred on shipboard, and in every case the vessel has been alongside some wharf where communication with the shore was not difficult. Two cases of yellow fever occurred on board the British brigantine *Alice Bradshaw*, one, the master of the vessel, dying soon after removal to hospital. The vessel was thoroughly disinfected by the barge *Sanator*. An attendant, whose duty it was to handle the infected dunnage, was taken sick three days after the disinfection of the vessel. Previous to this work he had not been ashore for nearly three weeks.

During the three months the boarding officer inspected 245 vessels on their arrival and cleared 529. The aggregate number of the crews of these vessels represents 22,965 men inspected.

Vessels from the Argentine Republic with cargoes of tasajo (jerked beef) have been the source of much concern and annoyance. It has been the purpose of the writer to place as light a quarantine restriction upon these vessels as is consistent with safety. On arrival they are disinfected with sulphur to kill rats and vermin, and upon completion of this work the vessel is allowed to proceed with the discharge of her cargo into lighters in the open bay under quarantine supervision, the captain and such members of the crew as necessary being allowed to go ashore. Medical inspections are made daily. As soon as the cargo is discharged the vessel is redisinfected and allowed pratique.

The inclosed copy of quarantine rules shows the regulations now in force at all ports of entry in Cuba, and the accompanying tabulated data give the amount of work performed at this station during the months of July, August, and September.

Respectfully,

A. H. Glennan,

Surgeon, U. S. M. H. S., Chief Quarantine Officer for the Island of Cuba.

Surgeon-General Marine-Hospital Service.

[Inclosure No. 1.]

U. S. Marine-Hospital Service,
Office of Chief Quarantine Officer for Island of Cuba.

The following quarantine and sanitary regulations are in force at all ports of entry in Cuba:

I. Pilots boarding vessels to conduct them into harbor shall proceed immediately to the pilot deck and remain there.

II. They shall immediately direct the yellow flag to be hoisted as a signal for inspection, whether the vessel has sickness on board or not.

III. Pilots shall remain upon the vessel until permitted to go ashore, and no person shall be allowed to come on board or leave the vessel until after the completion of inspection and the lowering of the quarantine flag.

IV. The hours for the inspection of vessels shall be from sunrise to sunset, except for vessels in distress.

V. Upon the arrival of a vessel the crew shall be mustered upon deck for inspection, and the number verified as given upon the crew list and bills of health. Cabin passengers shall also be inspected and the number verified, if from suspected or infected ports, and a careful inspection and verification of steerage passengers shall always be made.

VI. In suspicious cases occurring among the passengers or crew the clinical thermometer shall be used, and particular care is enjoined in vessels coming from ports or countries suspected of plague. Cases of pneumonia occurring en route must be carefully scrutinized; and when deemed necessary also the cervical, axillary, and inguinal regions examined for glandular enlargement, in order to exclude this disease.

VII. The written certificates of medical officers of the Navy and U. S. Army Transport Service may be accepted as to the sanitary condition of their vessel, passengers, and crew.

VIII. All vessels, whether foreign or coastwise, shall be subject to inspection throughout the year.

IX. Passenger vessels will not be allowed to lie at prohibited wharves.

X. No clothing or other dunnage which has presumably been exposed to infection shall be allowed aboard without disinfection.

XI. No ballast shall be taken by any vessel for United States southern ports except of the kind specified by the quarantine officer.

XII. Every case of sickness occurring on board any vessel in the harbor shall at once be reported by the master to the quarantine officer.

XIII. No person shall be shipped on a vessel bound for United States ports without a certificate from the quarantine officer.

XIV. Bills of health shall be required and issued in every instance upon the consular or supplemental forms for foreign or coastwise ports in accordance with the quarantine laws and regulations.

XV. When vessels expect to depart during the night or early morning the bills of health must be applied for the previous afternoon, during the customs office hours. The final inspection of the vessel, passengers, and crew shall be made during daylight as late as possible before sailing, and no further communication allowed with the vessel except by permission of the quarantine officer.

XVI. The official dispatch boats, acting under direct orders of the military governor, and vessels of the customs service are exempt from inspection and necessity of obtaining bills of health. In case, however, sickness occurs upon board of said vessels it shall be immediately reported to the quarantine officer.

XVII. In ports where a quarantinable disease prevails, certificates of health shall be required of all passengers before being allowed to board a vessel, and their baggage shall be labeled "Inspected and passed" or "Disinfected and passed," as may be required.

XVIII. The treatment of passengers, vessel, and crew shall be noted briefly under the head of "Remarks" upon the bills of health, time of day the vessel departs, partial or complete disinfection, methods employed; if disinfection is vitiated by after communication with shore, or other pertinent facts, and the same signed by the inspecting officer.

XIX. In any doubtful diagnosis or infractions of the quarantine rules and regulations, the vessel shall be detained in quarantine and the facts immediately telegraphed to the chief quarantine officer for instructions.

A. H. GLENNAN,
Surgeon, U. S. M. H. S., Chief Quarantine Officer for the Island of Cuba.

[Inclosure 2.]

Summary of the work performed at Habana during the months of July, August, and September.

	July.	August.	September.	Total.
BOARDING DEPARTMENT.				
Vessels inspected, arriving:				
Vessels from United States ports	13	34	61	245
Vessels from foreign ports	36	36	45	
Vessels from other Cuban ports		5	15	
Vessels inspected, cleared	182	183	164	529
Total number of vessels inspected				774
Aggregate number of crews inspected:				
On vessels arriving	2,916	3,796	4,931	11,643
On vessels cleared	3,675	3,996	3,651	11,322
Total				22,965
Number of passengers inspected, arriving	1,315	2,598	2,072	

Summary of the work performed at Habana during the months of July, August, and September—Continued.

[Inclosure 3.]

	July.	August.	September.	Total.
DISINFECTION DEPARTMENT (barge Sanator).				
Number of vessels disinfected	56	28	36	120
Number of pieces of baggage disinfected	1,248	1,814	393	3,455
SHORE PLANT.				
Number of pieces of baggage disinfected	1,205	1,441	1,538	6,865
Number of pieces of mail matter disinfected	51	54	82	
Number of pieces of express matter disinfected	95	90	139	
Number of pieces of freight matter disinfected	540	545	720	
Miscellaneous material disinfected for city and others	80	110	175	
Inspected and passed:				
Passengers' baggage	1,942	1,846	1,840	6,089
Freight	194	194	73	
Total number of pieces handled				16,409

[Inclosure 4.]

PASSENGER DEPARTMENT.				
Inspected	1,191	1,031	920	7,288
Vaccinated	66	45	80	
Total	1,257	1,076	1,000	
Immunes		154	376	
Rejected		23	69	

[Inclosure 5.]

Mortuary statistics for three months ended September 30.

Disease.	July.	August.	September.
Yellow fever	30	50	52
Typhoid	13	9	7
Diphtheria	1	1	2
Glanders	2	1	1
Scarlet fever		1	
Malaria	22	24	17
Smallpox	1		
Measles			1
Tuberculosis	61	65	72
Enteritis	65	50	28
Meningitis	58	48	
All causes	518	559	519

REPORT OF TRANSACTIONS AT THE PORT OF MATANZAS, CUBA, FOR THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT OF TRANSACTIONS FROM JULY 1, 1900, TO SEPTEMBER 15, 1900, INCLUSIVE.

By P. A. Surg. G. M. GUITÉRAS.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Matanzas, Cuba, August 9, 1900.

SIR: In accordance with instructions contained in Bureau letter of July 7, 1900, I have the honor to submit herewith the following report of the transactions of the Service in the second quarantine district of the island of Cuba during the period from November 1, 1899, to and including June 30, 1900:

The equipment of the station is practically the same as it was during the quarantine season of 1899, with the important exception of a steam boarding launch, with which the station was supplied during the latter part of the year. This addition has greatly increased the efficiency of the Service. In accordance with Bureau instructions, the launch has been named *McAdam*, in honor of the brave officer who lost his life during the yellow fever epidemic of 1899, in Key West.

The disinfecting plant is a stationary plant, situated at the foot of the main wharf and immediately adjoining the office building. The mean depth of water at this point is but 3 feet, so that it is impossible for vessels other than lighters and small boats to come alongside. Vessels of any considerable draft anchor from one-half mile to a mile from the dock, so that it is necessary to haul all stuff requiring disinfection from the vessel to the disinfecting plant and back. For the disinfection of outgoing baggage the plant is very convenient and efficient. The floating disinfecting plant which it is proposed to send to this station will complete its equipment and render it satisfactory in every way for the usual routine work.

There are no facilities directly under the control of the Service for the detention of persons under observation, or for the treatment of the sick. In ordinary cases the city lazaretto is available for the treatment of the sick, and an abandoned fort on the south shore of the harbor can be utilized for the detention of a limited number of persons. If the disease to be quarantined against should be plague or cholera, or the number of persons to be detained be too great to be handled here, the vessel would be remanded to Mariel or to Tortugas quarantine station, both of which points are about 90 miles from Matanzas.

The personnel of the Service in the second quarantine district of Cuba is as follows:

G. M. Guitéras, passed assistant surgeon, United States Marine-Hospital Service, in command of district; Felix Garcia, acting assistant surgeon, United States Marine-Hospital Service, assistant; Richard F. Amieva, clerk; Pablo Jorge, engineer of launch *McAdam;* Cecilio Rodriguez, engineer of disinfecting plant; Manuel Sosa, coxswain; Lorenzo Sarmiento, boatman; Manuel Fernandez, fireman; Dionisio Montero, messenger.

Cardenas.—Enrique Saez, acting assistant surgeon, United States Marine-Hospital Service, quarantine officer.

Isabela de Sagua.—P. Garcia Riera, acting assistant surgeon, United States Marine-Hospital Service, quarantine officer.

Caibarien.—Bernardo Escobar, acting assistant surgeon, United States Marine-Hospital Service, quarantine officer.

At all the ports in the second quarantine district of Cuba the methods of "in quarantine" are the same as those employed at national quarantine stations in the United States. All vessels from foreign ports, vessels from infected ports whether foreign or domestic, and vessels from ports suspected of being infected are carefully inspected on arrival in accordance with the regulations bearing upon the subject, and if everything is found correct the vessel is given a certificate of free pratique and turned over to the custom-house authorities. If there is any reason to apprehend danger to the public health the vessel is held and disinfected at this port or ordered to Mariel or Tortugas quarantine station (as before stated), according to the circumstances of the case.

For "out quarantine purposes" the following measures are taken: All vessels leaving for the United States or its outlying territories, or for noninfected Cuban ports not connected by rail with an infected focus, are inspected before departure to insure as far as possible that the vessel, cargo, passengers, and crew are free from infection. If the vessel is bound for a port south of the southern boundary of the State of Maryland, at which the disinfection of this Service is admitted as efficient, and the vessel expects to arrive at such port within ten days, the vessel may be disinfected at Matanzas before departure, thus utilizing the time in transit as quarantine detention time. The idea of disinfecting vessels at the port of departure is based on sound principles. It protects to a certain extent the health of the crew in transit; it protects the port of arrival from the introduction of quarantinable diseases, and it diminishes greatly the quarantine restrictions on commerce. It is therefore unfortunate that certain ports comprised within the littoral above mentioned, and which are under the control of State or municipal quarantine authorities, should nullify these advantages by refusing to accept wholly or in part the certificate of disinfection issued in the name of the Marine-Hospital Service, and it is further to be regretted that in some cases local health authorities discriminate between the certificates issued by different officers of the Service, accepting some and rejecting others, giving rise to confusion in the public mind.

The method of disinfecting vessels at this port is the same as that practiced at all national quarantine stations, in accordance with the quarantine regulations bearing upon the subject.

Passengers leaving the port of Matanzas for the United States or its outlying territories, or for noninfected Cuban ports not connected by rail with an infected focus, must obtain a certificate of health from this office before being permitted aboard the vessel, certifying to the general health of the individual and to his immunity against smallpox and yellow fever.

The baggage of passengers bound for the above-mentioned points is inspected and, if necessary, disinfected and so labeled. Baggage not to be used by the passenger in transit is sealed, so as to avoid danger of reinfection. Baggage is disinfected either by steam at 104° C., formaldehyde gas, or a combination of the latter and heat.

During the period covered by this report no claim has been received by this office for baggage damaged during the process of disinfection, and as far as I am aware none has been damaged.

The health of the ports comprised in the second quarantine district of Cuba has been good, particularly so in the case of Matanzas and Caibarien, both of which make an excellent showing. The mortality statistics of Cardenas and Sagua show a much higher death rate, evidently due to the insalubrious character of the country immediately surrounding them, which is low and marshy.

During the period covered by this report four cases of yellow fever occurred in the city of Matanzas, all of which could be clearly traced to Habana infection. Taking into consideration the proximity of this city to Habana and the absence of any effective quarantine restrictions by land or sea, it is difficult to explain why the disease is not propagated here, especially in view of the fact that there is plenty of nonimmune material. The cleanliness of the city and the fact that there is no tendency to conceal suspicious cases may in a measure account for this excellent condition of affairs. No case of yellow fever has been reported in Matanzas since February 14, 1900. The subports have been free from the same disease during the period covered by this report.

Table I gives a synopsis of the work of this station and of the subports within the second quarantine district of Cuba. Tables II to VIII give the mortality records of Matanzas from 1893 to 1899, and Table IX the mortality records for the first six months of 1900.

It will be noted that the death rate has fallen considerably and is now lower than at any time during the last eight years, during part of which period the island was in its normal condition under the Spanish régime.

Respectfully,

G. M. GUITÉRAS,
P. A. Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure 1.]

TABLE I.—*Statistics from November 1, 1899, to June 30, 1900.*

	Matanzas.	Cardenas.	Sagua.	Caibarien.
Passengers inspected	558	59	8	75
Passengers vaccinated	32			
Vessels inspected and passed	159	[a]263	91	[b]167
Vessels passed without inspection	44	[c]179	[d]346	
Vessels disinfected	16			
Pieces of baggage inspected	625		30	40
Pieces of baggage disinfected	88			
Bundles of clothes and bedding disinfected	796			

[a] 196 of the above were small coasting schooners and boats.
[b] The majority of the above were small coasting schooners and boats.
[c] 81 of the above were small coasting schooners and boats.
[d] 297 of the above were small coasting schooners and boats.

[Inclosure 2.]

TABLE II.—*Mortality statistics for Matanzas, 1893.*

CAUSE OF DEATH.	
Bronchitis and pneumonia	89
Beriberi	9
Diphtheria	20
Dysentery	4
Enteritis	132
Yellow fever	75
Infectious fever	20
Pernicious fever	9
Typhoid fever	26
Tuberculosis	223
Other causes	719
Total	1,326

NATIVITY.	
Cuba	865
Spain	272
Africa	86
Asia	54
Other countries	10
Not specified	39
Total	1,326

SEX.	
Males	803
Females	523
Total	1,326

Estimated population, 43,000.
Annual death rate, 30.83 per 1,000.

[Inclosure 3.]

TABLE III.—*Mortality statistics for Matanzas, 1894.*

CAUSE OF DEATH.	
Bronchitis and pneumonia	63
Diphtheria	24
Dysentery	62
Yellow fever	68
Fievre borras	1
Pernicious fever	12
Infectious fever	19
Malarial fever	4
Typhoid fever	27
Tuberculosis	165
Cancer	52
Other causes	841
Total	1,338

NATIVITY.	
Cuba	923
Spain	258
Africa	70
Asia	51
Other countries	22
Not specified	14
Total	1,338

SEX.	
Males	801
Females	537
Total	1,338

Estimated population, 44,000.
Annual death rate, 30.40 per thousand.

[Inclosure 4.]

TABLE IV.—*Mortality statistics for Matanzas, 1895.*

CAUSE OF DEATH.	
Bronchitis and pneumonia	52
Cancer	43
Diphtheria	10
Dysentery	99
Enteritis	167
Infectious enteritis	7
Yellow fever	27
Bilious fever	2
Infectious fever	15
Malarial fever	2
Pernicious fever	5
Typhoid fever	16
Tuberculosis	239
Smallpox	10
Other causes	714
Total	1,408

NATIVITY.	
Cuba	994
Spain	232
Africa	79
Asia	67
Other countries	16
Not specified	20
Total	1,408

SEX.	
Males	834
Females	574
Total	1,408

Estimated population, 46,000.
Annual death rate, 30.60 per thousand.

[Inclosure 5.]

TABLE V.—*Mortality statistics for Matanzas, 1896.*

CAUSE OF DEATH.	
Bronchitis and pneumonia	131
Cancer	31
Diphtheria	21
Dysentery	103
Enteritis	212
Yellow fever	301
Bilious fever	9
"Entero-septic fever"	5
Infectious fever	48
Malarial fever	64
Typho-malarial fever	8
Other fevers	15
Grippe	6
Tuberculosis	243
Smallpox	1
Measles	17
Other causes	1,006
Total	2,221

NATIVITY.	
Cuba and Porto Rico	1,541
Spain	589
Africa	72
Asia	67
Other countries	13
Not specified	45
Total	2,327

SEX.	
Males	1,471
Females	850
Total	2,321

Estimated population, 55,000.
Annual death rate, 42.30 per thousand.

[Inclosure 6.]

TABLE VI.—*Mortality statistics for Matanzas, 1897.*

CAUSE OF DEATH.	
Bronchitis and pneumonia	356
Beriberi	38
Cancer	50
Diphtheria	33
Dysentery	501
Enteritis	1,041
Yellow fever	101
Bilious fever	13
Infectious and malarial fever	982
Pernicious fever	45
Typhoid and typho-malarial fever	168
Starvation and exposure	1,135
Tuberculosis	462
Measles	174
Smallpox	167
Other diseases	1,463
Total	6,729

NATIVITY.	
Cuba	5,379
Spain	801
Asia	168
Africa	122
Other countries	21
Unknown	238
Total	6,729

SEX.	
Males	3,852
Females	2,877
Total	6,729

Estimated population, 53,000.
Annual death rate, 126.96 per 1,000.

[Inclosure 7.]

TABLE VII.—*Mortality statistics for Matanzas, 1898.*

CAUSE OF DEATH.	
Bronchitis and pneumonia	122
Cancer	36
Diphtheria	14
Dysentery	440
Enteritis	932
Infectious enteritis	46
Yellow fever	12
Bilious fever	5
Infectious fever	82
Malarial fever	864
Pernicious fever	101
Typhoid	85
Starvation and exposure	1,068
Tuberculosis	438
Smallpox	10
Other diseases	1,717
Total	5,972

NATIVITY.	
Cuba	4,835
Spain	723
Asia	115
Africa	145
Other countries	29
Unknown	125
Total	5,972
SEX.	
Males	3,251
Females	2,721
Total	5,972

Estimated population, 49,000.
Annual death rate, 121.87 per 1,000

[Inclosure 8.]

TABLE VIII.—*Mortality statistics for Matanzas, 1899.*

CAUSE OF DEATH.	
Bronchitis	20
Cerebral congestion	11
Diphtheria	5
Dysentery	37
Enteritis	296
Yellow fever	5
Infectious fever	13
Typhoid fever	41
Malarial fever	363
Grippe	3
Hydræmia	136
Starvation and exposure	37
Pneumonia	56
Smallpox	1
Tuberculosis	232
Other causes	497
Total	1,753

NATIVITY.	
Cuba and Porto Rico	1,373
Spain	240
Africa	49
Asia	28
Other countries	27
Unknown	23
Total	1,740
SEX.	
Males	932
Females	821
Total	1,753

Estimated population 44,000
Annual death rate 39.84 per 1,000.

[Inclosure 9.]

TABLE IX.—*Mortality statistics for Matanzas, first semester, 1900.*

CAUSE OF DEATH.	
Typhoid fever	5
Malarial fever	45
Yellow fever	1
Infectious fever	1
Grippe	9
Diphtheria	3
Pneumonia	3
Tuberculosis	99
Tetanus neonatorum	17
Carcinomata	25
Bronchitis	15
Broncho-pneumonia	39
Pulmonary congestion	11
Enteritis	43
Other causes	198
Total	514

NATIVITY.	
Cuba	403
Spain	58
Africa	19
Asia	14
Other countries	12
Unknown	8
Total	514
SEX.	
Males	300
Females	214
Total	514

Population according to census of 1900, 45,250.
Annual death rate, 22.70 per 1,000.

REPORT OF TRANSACTIONS AT THE PORT OF NUEVITAS, CUBA, FOR THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT OF TRANSACTIONS FROM JULY 1, 1900, TO SEPTEMBER 15, 1900, INCLUSIVE.

By Acting Asst. Surg. O. W. STONE.

MARINE-HOSPITAL SERVICE,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Nuevitas, Cuba, July 18, 1900.

SIR: I have the honor to submit the following report for the period commencing November 1, 1899, and ending June 30, 1900:

As before reported, the Marine-Hospital Service has erected at this place a disinfecting plant, a frame building 20 by 60 feet, containing the boiler and steam chamber with cylinder attached for formalin; also autoclave and force pump for disinfecting vessels. The location of the plant is such that baggage, etc., to be disinfected can be landed from vessels without endangering the town. For the purpose of boarding vessels expeditiously it was found necessary to purchase the steam launch *Prochazka*, anchorage being from 2 to 6 miles out in the bay. Much difficulty and delay was occasioned when we had to depend upon the use of sailboat. Now, being notified by semaphore of the arrival of a vessel off the entrance of the harbor, we are enabled to board and make inspection as soon as anchorage is made. The Service has established on an island 2 miles from town a detention camp, where nonimmunes from an infected point are required to remain under observation the number of days from such point required to make it safe to admit them to the town. Near the detention camp, but on the mainland, there is a camp for the treatment of such quarantinable disease as may develop in the detention camp or be removed from vessels. Up to the present time no quarantinable disease has developed among those in detention.

There are two acting assistant surgeons at this station, who board and inspect vessels, examine and give health certificates to passengers from this port, ascertain and report sanitary conditions existing in the district, and attend to the routine work connected with the disinfecting plant and office. There is an engineer, a sanitary guard, and a messenger. On the steam launch there are five employees—master, engineer, fireman, and two seamen. The quarantine officer, on boarding a vessel, inspects the bill of health, musters the crew and passengers, and ascertains the sanitary condition of the vessel and the physical condition of the crew and passengers. If the vessel is from an infected port, certificate of immunity, if yellow fever, or of nonexposure to other diseases are required. The baggage is inspected, and all which may possibly be infected is taken to the plant and disinfected. If any quarantinable disease is found, it is removed to the camp for treatment and the vessel treated as infected. All passengers from this port and the subports in the district are required to obtain health certificates before purchasing tickets, the agents of the different lines doing business at these ports agreeing to this in order to avoid delay. All baggage which may have been exposed to infection is disinfected and sealed and so labeled, the owner of the property being informed that any disturbance of the seal before arrival at destination will cause it to be again disinfected. Only one vessel arrived at this port since the writer has been in charge—the *Curityba*, from New York—requiring disinfection. This vessel arrived on January 12, 1900, with five cases of diphtheria on board, which were removed to the camp, and those compartments of the vessel occupied by them, with contents, were disinfected with solution of bichloride 1 to 800 and sulphur 6 pounds to 1,000 cubic feet.

Since November 1, 1899, to June 30, 1900, inclusive, 181 passengers arriving at this port were inspected, and certificates of protection from smallpox, by attack or vaccination, have been issued to 1,945 passengers leaving here. The number of vaccinations has not been kept. All persons not presenting evidence of protection have been vaccinated. Two hundred and fourteen vessels arriving at this port during above period were inspected and passed, with the exception of three, which were wholly or partially disinfected. Bills of health were issued to 227 vessels leaving this port, and 437 pieces of baggage have been disinfected since December 1, 1899.

There have been 131 certificates of death issued in Nuevitas during the year ending June 30, 1900—about 26 per 1,000 of the estimated population—while there were no deaths in the two companies of the Fifteenth Infantry, U. S. Army, stationed here during seven months of the above year, and there have been only two deaths among the more than 600 Americans who arrived at the settlement called La Gloria during that year. It is true that many of these made only a short stay, but many remained several months, and about 170 are still there. These colonists have been subjected to very great discomfort and exposure, many working in the sun clearing land, surveying, etc. I am informed that there have been no deaths in the Eighth U. S. Cavalry, encamped about 5 miles from Puerto Principe, this year. The high death rate of Nuevitas is, I think, due more to the bad sanitary condition of the town and want of proper diet than to climatic influence. Very great improvement in the sanitary condition of Nuevitas has been made by the military authorities since the occupation, but there is yet much to be done.

The town of Nuevitas is located on a long and not very high hill sloping on the north and east to the bay; the geological formation a calcareous marl, very porous, so much so that water falling on higher parts of the town, in natural depressions, open excavations, and defective cisterns is quickly absorbed and discharged in the form of springs at different levels on the hillside, those highest on the hill drying quickly, while those at the bottom only cease running in seasons of very long, continued drouth. There is no sewerage in the place, sinks being dug on the different premises. Some of these, I am told, overflow from seepage water during the rainy season and discharge on the surface and into the streets, while in the dry season liquid matter thrown into them would be absorbed, thus rendering any disinfection of these places unsatisfactory on account of the constant ebb and flow of water through soil which in time must have become infected. The three cases of yellow fever reported at this place this year were evidently contracted from exposure in infected houses which were not cleaned by the sanitary authorities last year, they depending on the work being done by owners. That more cases have not developed is, I think, due to the promptness displayed in the isolation of the sick, the immediate disinfection of the premises, giving access as quickly as possible afterwards to sunlight and the stiff sea breeze prevailing, aided by what I believe to be an unfavorable season for development of the infection. Up to this time an almost constant sea breeze has prevailed; also infrequent but heavy rains washing the streets and a sunlight and heat without moisture unfavorable to the development of any germs.

There has been no report of smallpox at any point in the district during the year. Vaccination is compulsory in connection with attendance of the public schools, and nearly everyone applying for health certificates has at some time been successfully vaccinated. Vaccination seems to have been about the only precaution as to smallpox practiced during the Spanish occupation, and I am informed that when it appeared there were no quarantine regulations to prevent its spreading. I was told at the time a case was discovered here last year, isolated, and the premises disinfected, that the precaution was one not previously taken.

The municipal building laws, unless changed, will add much to the difficulty of putting Nuevitas in a good sanitary condition and keeping it so, the town lots being sold by the municipality always with the proviso that they must be built upon within six months or forfeited, to be again sold. The buildings are required to be so placed that there shall be no space between them and the street, front yards not being allowed, and no provision being made for alleyways. The squares are practically walled in on the four sides, the only means of communication with the interior of the houses being the front doors. The night air being considered bad, all doors and windows are closed, and the only ventilation is from the center, so that infectious disease in one house is liable to affect the whole square.

Cubans in general care but little for sanitation, but place no obstacles in the way of the sanitary officers, and submit with good grace to such inconvenience as is caused by quarantine regulations.

Respectfully, yours,

OWEN W. STONE,
Acting Assistant Surgeon, U. S. M. H. S., Commanding Third district, Cuba.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure 1.]

Transactions of the United States Marine-Hospital Service for the fiscal year ending June 30, 1900, third division, Cuba.

Number of vessels arrived, Nuevitas	311
Number of bills of health issued, Nuevitas	326
Number of pieces of baggage disinfected since December 1, 1899	310
Number of certificates of health issued to passengers for the United States since December 1, 1899	485
Number of certificates of health issued to passengers for Porto Rico since December 1, 1899	5
Number of cases of yellow fever reported, 1899, Nuevitas	2
Number of cases of yellow fever reported, 1900:	
Nuevitas	2
Holguin, reported through Gibara	1
Number of deaths from yellow fever, Nuevitas, 1900	1
Vessels disinfected, 1899, U. S. transport *Ingalls*, on account of yellow fever on board	1
Vessels disinfected, 1900, *Curityba*, from New York, on account of diphtheria on board	1

MARINE-HOSPITAL SERVICE,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Nuevitas, Cuba, September 20, 1900.

SIR: I have the honor to submit the following supplemental report to that of June 30, 1900, from July 1 to September 15, 1900, inclusive.

Eighty-six vessels arrived at this port and 90 bills of health were issued. Three hundred and twenty-eight passengers arrived, and 383 certificates of protection from smallpox were issued. Eighteen pieces of baggage were disinfected, and 9 passengers were held for observation. One steamer was disinfected which cleared for Mobile, Ala.

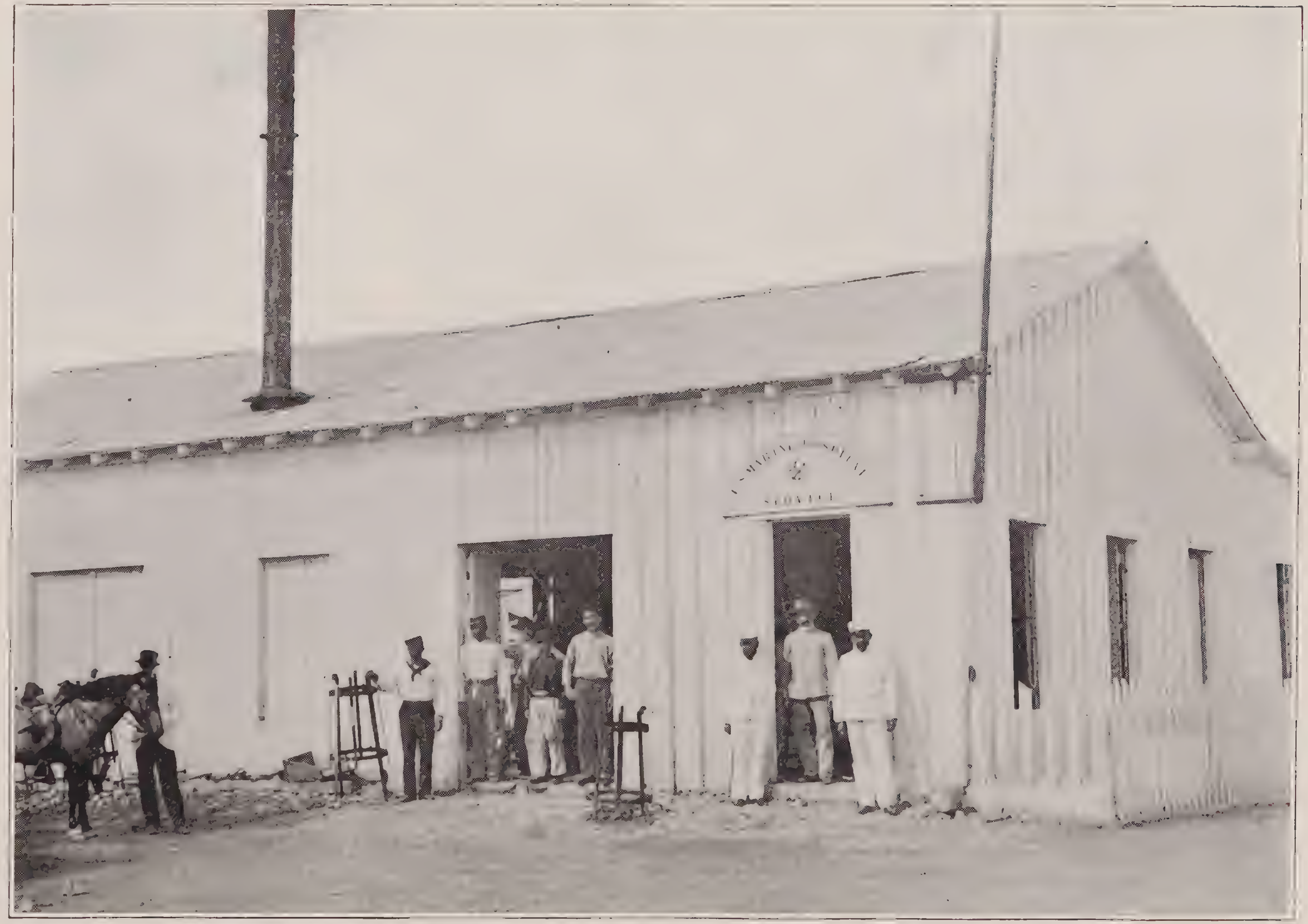
There have been reported no cases of quarantinable disease from any point in this district, with the exception of leprosy; of this seven cases were sent from Puerto Principe to Habana in a separate compartment on a barge, with directions that there should be no communication between the lepers and nurses and the crew and other passengers. I am informed that there are five other cases of leprosy in this town and vicinity, which are to be sent to Habana also. This seems to be about the first effort to segregate these cases.

There have been no deaths among the American soldiers or civilians since former report, and only 12 deaths in the native population. The weather during the period has been fairly cool and dry, with a constant sea breeze. Reports from substations in this district indicate about the same conditions as prevail at this place.

Respectfully, yours,

OWEN W. STONE,
Acting Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.



MARINE HOSPITAL OFFICE AND SHORE PLANT, SANTIAGO DE CUBA, OCTOBER, 1900.

REPORT OF TRANSACTIONS AT THE PORT OF SANTIAGO, CUBA, FOR THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT OF TRANSACTIONS FROM JULY 1, 1900, TO SEPTEMBER 15, 1900, INCLUSIVE.

By Asst. Surg. HERMAN B. PARKER and Asst. Surg. R. H. VON EZDORF.

MARINE-HOSPITAL SERVICE,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Santiago, Cuba, July 1, 1900.

SIR: I have the honor to make the following report of the operations and equipment of the fourth quarantine division of the island of Cuba (south coast, province of Santiago de Cuba), comprising the ports of Santiago, Guantanamo, Manzanillo, and Daiquiri, from November 1, 1899, to June 30, 1900:

SANTIAGO.

Description of the grounds, buildings, and disinfecting apparatus.

Office.—At the beginning of this period the office was located at No. 8 San Basilio street, but the destruction of this house by a storm early in September necessitated a change. The location uptown, while having some advantages, was not altogether satisfactory on account of the most important work being at the port. To overcome this a space 12 feet in width was partitioned from the building of the shore disinfecting plant. This change was of great advantage in facilitating the handling of baggage and movements in the port. In February of the present year an addition 12 feet square was made, extending over the water. This is used as the main office. It is suggested that these rooms be wainscoted throughout in order that they will correspond to the recent addition. In this respect the Service will then be well-equipped.

Shore disinfecting plant.—This building was erected in August, 1899. It was originally 48 by 28 by 14 feet, but 12 feet having been partitioned for an office leaves the building 36 by 28 by 14 feet. It is built of wood, with corrugated iron roofing and a cement floor. It contains a 60-inch chamber Kinyoun-Francis disinfecting apparatus complete, with sufficient space for the installation of a similar apparatus when the necessity arises. An addition 6½ by 28 by 12 feet was erected the latter part of May, at the request of the military and civil authorities, for the disrobing and bathing of passengers and disinfection of personal effects of individuals coming in contact with contagious diseases. A wharf 12 by 28 feet is located on the water front of the building for storing baggage passed by the chief disinfector and for boarding the steam launch *Branham*.

Steam launch.—The steam launch *Branham* is used by the boarding officer for official work and as a tender to the *Rough Rider*. It has been kept in excellent repair throughout the year.

Disinfecting barge.—The disinfecting barge *Rough Rider* has been used since the installation of the shore disinfecting plant exclusively for the disinfection of ships. Its dimensions are as follows: Length, 112 feet; beam, 22 feet; deck space, 90 by 19 feet; tonnage, 460. It is equipped with two 56-inch Kinyoun-Francis disinfecting chambers, two 30-inch boilers, one Kinyoun-Francis sulphur furnace, one Sturtevant exhaust fan with engine and connections, and a bichloride pump. The chambers are located near the after end of the ship, having sufficient space aft for the infected material and forward for disinfected material. The other machinery is compactly located in the forward end of the ship. There are three sulphur and three bichloride connections, one of each located forward, amidship, and aft. I have found that the 30-inch boiler is not sufficiently large for the continuous running of a 56-inch chamber. I believe that at least a 34-inch boiler is necessary for the proper running of a chamber of this size, especially when there are several auxiliaries, as pumps and fan, to be run at the same time.

Detention camp.—Since March of the present year material has been received to equip a detention camp sufficiently large to accommodate 50 people. Cayo Ratones, or Magazine Island, the original site, was selected and prepared by authority of Colonel Whitside, the military governor of this province; this authority, however, was revoked by General Wood. Since then I have carefully examined every available locality, but to this time have not succeeded in finding a suitable place, that I would consider healthy enough for a camp, that did not have too many obstacles in the way of altitude, means of access, means of placing equipment, and water supply. I am still of the opinion that Cayo Ratones is the only properly located piece of ground for a detention camp; that sooner or later it will be given for quarantine purposes; and that I do not consider it would be advisable to establish a temporary camp in an unfavorable locality while there are prospects of obtaining this island.

At present passengers coming from infected localities are detained on the ship on which they arrive to complete their period of observation. Fortunately up to this time this has been possible, although to the inconvenience of shipping.

Treatment of the sick.—Regulation 39, formulated for the management of this station, reads as follows: "A daily inspection will be made by the boarding officer, and all sickness of any character will be reported in writing to the medical officer in command, and an entry with the diagnosis made in the medical officer's journal."

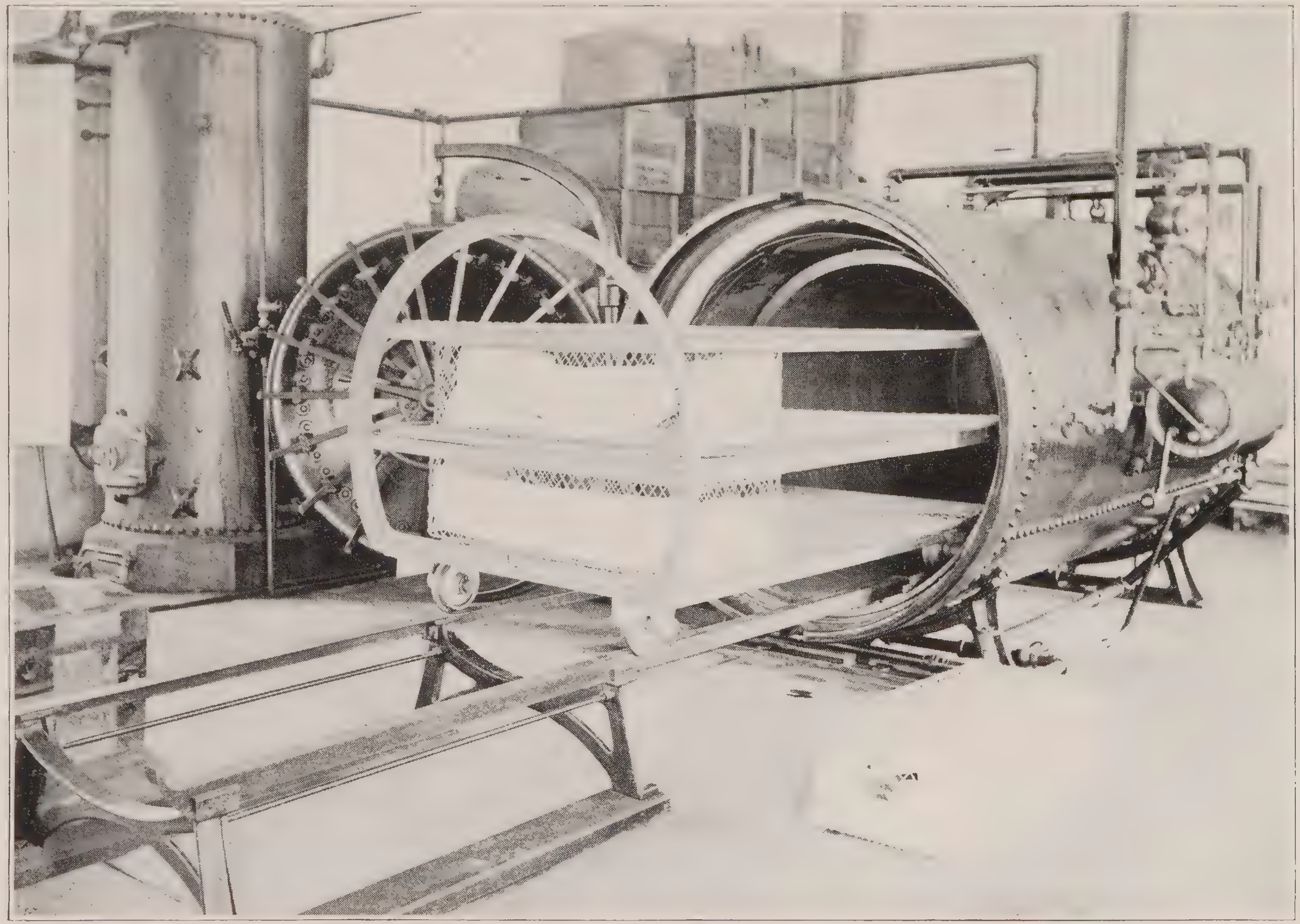
This regulation has been strictly complied with since the regular running of the station was established. A boarding officer noted the sanitary condition of the vessel and treated all the sick on all vessels of all nationalities without any expense to the vessel, unless on recommendation they were removed to the civil hospital, where the expense was paid by the consul representing the nation. I have insisted that no private physician can see cases on board vessels except in company with our own officers. This was necessary in order that cases of contagious disease could not be concealed.

Method of certifying and inspecting passengers and labeling of baggage.—When a passenger desires to embark for a port in the United States or Porto Rico, he applies for a health certificate. Two classes of certificates are issued: (1) Certificate of protection from smallpox (inclosure 1); (2) health and acclimation certificate (inclosure 2). These certificates are not issued until the day prior to the sailing of the vessel, and the applicant is instructed that the baggage must be brought at the time of application. He is then examined, and if presenting evidences of vaccination and is nonimmune to yellow fever, he is given a certificate of protection from smallpox; if in addition to the evidences of vaccination he presents positive evidence of immunity to yellow fever, either by ten-year residence in infected localities or a certificate by an accredited physician of attack of yellow fever, he is granted a health and acclimation certificate, which certifies that he is also immune to yellow fever. A record of the data given is entered in a register, a specimen page of which is inclosed (inclosure 3). The certificate is then given to the chief disinfector, who acts according to the written directions, either labeling the baggage "inspected and passed," or, after disinfection, "disinfected and passed." The chief disinfector keeps a record of his work, a specimen page of which is inclosed (inclosure 4). The certificate is returned to the applicant, who then applies for his ticket, which, by a previous arrangement with the steamship agent, he can not procure until he presents his health certificate. From November 1, 1899, to June 30, 1900, the following statistics (inclosure 5), number of health certificates granted, and from March 26, 1900, to June 30, 1900 (inclosure 6), the number of pieces of baggage inspected or disinfected and passed are inclosed. These certificates I consider superior to the forms in use prior to then on account of their giving the ultimate destination of the individual and the directions to the chief disinfector as to the treatment of baggage. During the last year I have not insisted so strongly on revaccination on account of the almost complete disappearance of smallpox from this province.

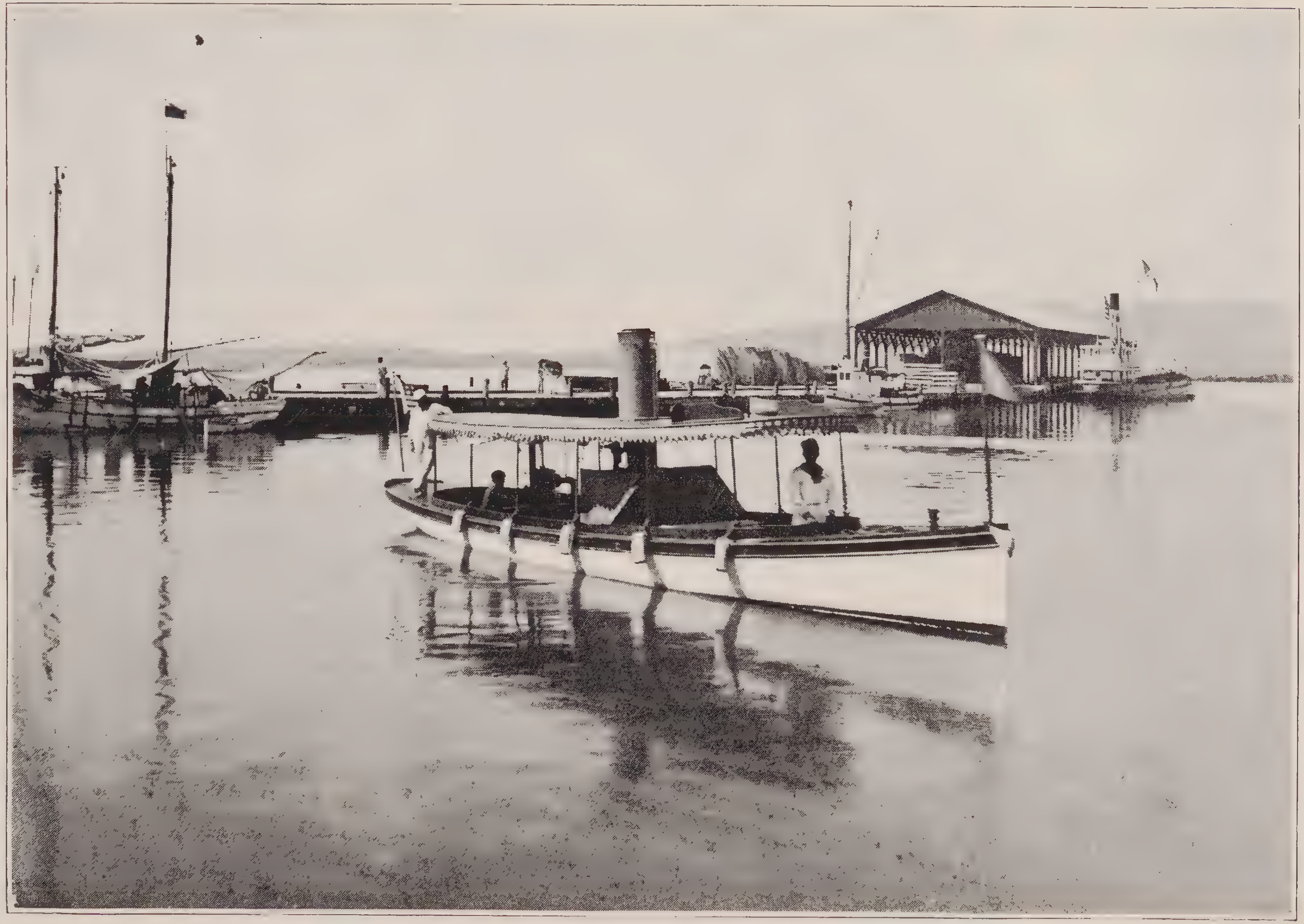
Description of quarantine.—All vessels, whether coastwise or foreign, arriving at this port are subject to inspection and are considered by the custom-house officials as being quarantined until pratique is given by the boarding officer. Before granting pratique the boarding officer inspects the "bill of health," afterwards the passengers and crew, usually in line. If there is no suspicion of contagious disease on board, pratique is given. Since the appearance of plague in European ports, we have prohibited free communication with ships arriving from Spanish and Portuguese ports, in the same manner; since the appearance of plague in South America and the one reported case in Central America, I have considered all of those ports suspicious and have not allowed ships arriving from said ports to have free communication with the city. At the request of the military governor all nonimmune passengers arriving from yellow-fever infected ports have been detained on board the ship on which they arrived to complete five days from that port. This request was granted not because it was considered any more protective than our original method, but to satisfy the military authorities. Since November 1, 1899, there has been but one ship with infection on board; on November 1, 1899, a case of yellow fever was removed from the U. S. army transport *Wright*. The vessel was disinfected and no more cases occurred.

Statistics of the number of vessels inspected and passed are inclosed (inclosure 7), also statistics of the number of vessels inspected and detained to complete a period of five days from an infected port, or for observation of the sick (inclosure 8).

Immigration.—In addition to the inspection of passengers and crews an inspection is made of immigrants, a weekly and monthly report being submitted to the Bureau.



STEAM CHAMBER AND BOILER, SHORE PLANT, SANTIAGO DE CUBA, OCTOBER, 1900.



STEAM LAUNCH BRANHAM, SANTIAGO DE CUBA, OCTOBER, 1900.

From November 1, 1899, until June 30, 1900, 1,054 immigrants were inspected and passed, and 1 rejected on account of physical deformity. The statistics of these inspections are inclosed (inclosure 9).

The baggage of immigrants arriving from Spanish ports was inspected and if necessary disinfected. Statistics of disinfection of immigrant baggage is inclosed (inclosure 10).

Out quarantine.—Vessels leaving for ports controlled by the United States were given the consular bill of health; if in transit to a port controlled by the United States, a supplemental bill of health. Coasting vessels between ports on the island of Cuba were given the Cuban coastwise bill of health (inclosure 11). Vessels bound to ports over which the United States has no control were, on application of masters of vessels, given a special form, known here as a foreign bill of health (inclosure 12).

Before issuing a bill of health it was ascertained on inspection that there was no danger of carrying contagion to the port of destination. This inspection included the crew, passengers, baggage, and freight. All inspections were made as near as possible to the hour of sailing. From November 1, 1899, until present time it is definitely known that one case of yellow fever developed after embarkation at this port. This case occurred on the U. S. Army transport *Burnside* in December, 1899. The following are the statistics (inclosure 13) of the number of bills of health granted to vessels bound for ports controlled by the United States, and (inclosure 14) the statistics of the bills of health granted to vessels bound to foreign ports.

Methods of disinfecting baggage.—Two disinfecting agents are used at this station for the disinfection of baggage—steam and formaldehyde. Steam was used on all fabrics to which formaldehyde was not applicable, as woolen goods and articles from known infected localities. It was subjected to a pressure of 15 pounds for twenty minutes after the thermometer registered 212°. Articles in closed containers, such as trunks and boxes, were disinfected by sprinkling with formaldehyde. The efficacy of this method is questioned as applied to baggage generally, but for the class of baggage to which it is applied in tropical countries—that is, linen and wash goods of a porous nature generally—it should give good results if used in sufficient quantity, six to eight ounces being used for each container, and each individual piece receiving its proportional quantity in small drops.

Baggage disinfected by steam or formaldehyde is sealed until arrival at destination. We have no means of ascertaining whether this is strictly complied with, as there is no inspection of baggage, as near as I can understand at Northern quarantine stations, practically the only channel through which baggage disinfected by us goes.

Disinfection of ships.—It is needless to say that each ship is an individuality in itself in regard to method of procedure, besides the considerations that apply to ships in general. A brief résumé of the methods of disinfection may be described as follows: (1) The ship to be mechanically clean before disinfection is commenced. (2) All fabrics are removed from the ships and subjected to steam above 100° C. for thirty minutes. (3) Cabins: First washed with a solution of bichloride of mercury 1 to 800 or carbolic acid 5 per cent, afterwards formaldehyded, using 4 to 6 per cent of gas. (4) Hold: First washed with a solution of bichloride of mercury 1 to 800 under pressure with a hose, then SO_2 is pumped in, using 10½ pounds sulphur to 1,000 cubic feet of space. (5) Forecastles: First washed with a solution of bichloride of mercury 1 to 800, then sulphured or formaldehyded.

Statistics (inclosure 15) of the vessels disinfected from November 1, 1899, until June 30, 1900, are inclosed:

Yellow fever.—During the month of November, 1899, six cases of yellow fever with no deaths, and during the month of December, 1899, three cases with two deaths were reported. No yellow-fever cases have been officially reported since then.

Mortuary statistics of the city of Santiago de Cuba are inclosed (inclosure 16).

Officers and employees.—The following is a list of the officers and employees on duty at this station and subports on June 30, 1900:

Santiago de Cuba:
- Herman B. Parker, assistant surgeon, in command.
- Edward F. Nunez, acting assistant surgeon, boarding officer.
- H. S. Caminero, acting assistant surgeon, boarding officer, issues bills of health to vessels and certificates to passengers.
- Leonard Schwan, acting clerk, clerical work of the station.
- John F. Kuhn, chief disinfector, charge of disinfection of vessels and baggage.
- ——— ———, launch engineer. Position at present vacant.
- Mariano Romani, barge engineer, operates steam disinfecting chambers, engines, boilers, sulphur furnace, and bichloride pump; keeps same in repairs. At present is also acting as engineer of the steam launch *Branham.*
- Francisco Serrano, pilot. Acting as captain of steam launch.

Henry Valdstein, captain of disinfecting barge *Rough Rider*, charge of men at work, assists in all disinfections.

Antonio Rey, cook; prepares meals for the attendants.

Antonio R. Gisbert, watchman; watching at shore disinfecting plant, keeps offices cleaned, and assists in handling baggage by disinfection.

Jaime Ensenat, Francisco Sarra, Anton Weidner, Juan Rams, seamen. These seamen are stationed on the disinfecting barge *Rough Rider*, clean the ship daily, assist in disinfections, and do such other duties as the occasion may require.

Isaac Mirabal, attendant; takes care of the station horse.

Ernesto Gonzalez, attendant; assists captain of the steam launch in keeping launch in order, acts as seaman on launch.

Guantanamo:

Luis Espin, acting assistant surgeon, in charge of station.

Manzanillo:

R. de Socarras, acting assistant surgeon, in charge of station.

Daiquiri:

Juan J. de Jongh, acting assistant surgeon, in charge of station.

Acting Asst. Surg. H S. Caminero has been continuously on duty at this station since December 8, 1899. The duties assigned to him were the inspection of outgoing vessels and as the office assistant.

Acting Asst. Surg. Edward F. Nunez was assigned to the inspection of all vessels in the harbor and treatment of the sick.

I can cheerfully commend the services of both of these gentlemen to the Bureau.

Chief Disinfector John F. Kuhn reported for duty April 12, 1900. He was assigned to the charge of the disinfecting barge *Rough Rider* and shore disinfecting plant, the disinfection of ships and the disinfection and labeling of baggage. Mr. Kuhn had had previous experience as a hospital steward in this Service. His work here and interest displayed in his work are very commendable. The statistics of the disinfection of ships, baggage, and labeling of baggage are by him.

Acting Clerk Leonard Schwan has been on duty at this station since February, 1899. During this time his work has been exceptionally accurate and faithfully performed. He is familiar with all the routine of the station, and would make a good acting steward at any station.

The attendants of this station have been almost exclusively Spaniards. They are all good workers, sober, and honest. They can always be relied upon for all kinds of work at any time.

MANZANILLO.

The Service is represented at this station by Acting Asst. Surg. R. de Socarras, whose work has been excellent for this period. There is no equipment, disinfecting plant, nor means of boarding vessels at this station. It is very seldom a port of destination, vessels usually being in transit to either Santiago or Cienfuegos, to which places the quarantine officer is instructed to remand them if they have quarantinable disease on board. As a means of boarding vessels Dr. Socarras uses the customhouse tug.

Inspection of baggage and certification of passengers is not carried out at this station, excepting coastwise, there being no facilities for such work.

Statistics of the inspection of vessels and immigrants (inclosure 17) are inclosed.

GUANTANAMO.

Until December 13, 1899, Acting Asst. Surg. H. S. Caminero represented the Service at this station. At this time, owing to the small importance of the place as a shipping point, it was recommended that the quarantine officer be temporarily removed until the beginning of the active quarantine season of 1900. This, however, met with some complaint from the collector of customs and a few citizens, so that on March 9, 1900, Acting Asst. Surg. Luis Espin was transferred to that place from Santiago. The work is practically the same as that at Manzanillo.

Statistics (inclosure 18) for the work done at this station are inclosed.

DAIQUIRI.

This station is but a coast shipping port for iron ore, having no trade but vessels for that article. The Service is represented here by Acting Asst. Surg. Juan J. de Jongh. The work consists principally of the inspection of incoming and outgoing vessels.

Statistics (inclosure 19) of this work are inclosed.

Respectfully,

HERMAN B. PARKER,
Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure 1.]

U. S. MARINE-HOSPITAL SERVICE.

CERTIFICATE OF PROTECTION FROM SMALLPOX.

SANTIAGO DE CUBA, ——— —, *1900.*

This is to certify that ——— ———, a native of ———, a resident of ——— ———, destination ——— ———, years old ———, color ———, sex ———, has produced satisfactory evidence to me that ——— is protected from smallpox by a previous attack of the disease or by ——— successful vaccination, or by being vaccinated this day, and that ——— is ——— in good health at the present time.

This certificate is good only on S. S. ———.

Personal description of the individual.—Height, —— feet —— inches; weight, —— pounds; hair, ———; mustache, ———; chin beard, ———; side whiskers, ———; eyes, ———; form, ———.

Baggage, ———. Treatment of baggage, ———.

——— ———,
Assistant Surgeon M. H. S.

[Inclosure 2.]

U. S. MARINE-HOSPITAL SERVICE.

HEALTH AND ACCLIMATION CERTIFICATE.

SANTIAGO, CUBA, ——— —, *1900.*

This is to certify that ——— ———, a native of ——— ———, a resident of ——— ———, destination ——— ———, years old ——, color ———, sex ———, has produced satisfactory evidence to me that ——— is acclimated to yellow fever by ——— years' residence in infected cities, or attack in ———.

That ——— is protected from smallpox by a previous attack of the disease, or by ——— successful vaccinations, or by being vaccinated this day.

And I further declare my belief that ——— is in good health at the present time, that ——— is sufficiently acclimated to the diseases of the Tropics that ——— presence threatens no danger from yellow fever, cholera, or smallpox.

This certificate is good only on S. S. ———.

Personal description of the individual.—Height, —— feet —— inches; weight, —— pounds; hair, ———; mustache, ———; chin beard, ———; side whiskers, ———; eyes, ———; form, ———.

Baggage, ——— pieces. Treatment of baggage, ———.

——— ———,
Assistant Surgeon M. H. S.

[Inclosure 3.]

U. S. MARINE-HOSPITAL SERVICE.

Date.	Name.	Age.	Sex.	Color.	Nativity.

[Inclosure 4.]

U. S. MARINE-HOSPITAL SERVICE.

Date.	Name of vessel.	Name of passenger.

[Inclosure 5.]

Health certificates issued at the port of Santiago de Cuba from November 1, 1899, to June 30, 1900.

1899.	
November	95
December	89
1900.	
January	74
February	90
March	217
April	221
May	152
June	195
Total	1,133

[Inclosure 6.]

Baggage passed at the port of Santiago de Cuba from March 26, 1900, to June 30, 1900.

Month.	Disinfected and passed.	Inspected and passed.
1900.	*No. of pieces.*	*No. of pieces.*
March	9	37
April	227	282
May	76	259
June	83	272
Total	395	850

[Inclosure 7.]

Vessels inspected and passed at the port of Santiago de Cuba from November 1, 1899, to June 30, 1900.

1899.	
November	64
December	66
1900.	
January	66
February	59
March	68
April	66
May	64
June	50
Total	503

[Inclosure 8.]

Vessels inspected and detained at the port of Santiago de Cuba from March 28, 1900, to June 30, 1900.

March	1
April	1
May	6
June	4
Total	12

[Inclosure 9 relates to immigration and is published elsewhere.]

[Inclosure 10.]

Spanish immigrant baggage passed at the port of Santiago de Cuba.

Month.	Disinfected and passed.	Inspected and passed.
1900.	*No. of pieces.*	*No. of pieces.*
April	5	11
May	10	46
Total	15	57

[Inclosure 11.]

BILL OF HEALTH.

U. S. MARINE-HOSPITAL SERVICE,
OFFICE QUARANTINE OFFICER,
——— *Cuba*, ——— —, *1899.*

I certify that the ——— ——— of ——— leaves this port for ——— —— in ——— cargo, ballast, empty, with ——— crew all told and ——— passengers ——— ———. She arrived from ——— ——— on ——— —, 1899, and lay at ——— a ——— place.

Number of cases and deaths from the following-named diseases during the past two weeks ending ——— —, 1899.

Diseases.	Number of cases.	Number of deaths.	Remarks. [Any condition affecting the public health existing in the port of departure or vicinity to be here stated.]
Yellow fever			
Asiatic cholera			
Cholera nostras or cholerine			
Smallpox			
Typhus			
Plague			
Relapsing fever			

——— ———,
Quarantine Officer, U. S. M. H. S.

[Inclosure 12.]

No. ——.] CUBA—BILL OF HEALTH. [Form 1931d.

UNITED STATES MARINE-HOSPITAL SERVICE,
OFFICE OF THE QUARANTINE OFFICER,
Port of Santiago de Cuba, ——— —, 1—.

Name of vessel, ——— ———; captain, ——— ———; nationality, ———; rig, ———; tonnage, ———.
Bound from ——— ——— to the port of ——— ———.

Number of cases and deaths from the following-named diseases during the past two weeks at this port.

Diseases.	No. cases.	No. deaths.	Remarks.
Yellow fever			
Asiatic cholera			
Cholera nostras or cholerine			
Smallpox			
Typhus			
Plague			
Relapsing fever			

Given under my hand and seal this —— day of ———, 1—.

——— ———,
Quarantine Officer, U. S. M. H. S.

[Inclosure 13.]

Bills of health issued to vessels bound for ports controlled by the United States from November 1, 1899, to June 30, 1900.

1899.	
November	40
December	35
1900.	
January	44
February	33
March	43
April	49
May	45
June	36
Total	325

[Inclosure 14.]

Bills of health issued to vessels bound for foreign ports from November 1, 1899, to June 30, 1900.

1899.	
November	7
December	10
1900.	
January	9
February	10
March	12
April	9
May	10
June	6
Total	73

[Inclosure 15.]

Vessels disinfected at the port of Santiago de Cuba from November 1, 1899, to June 30, 1900.

1899.	
November	1
December	0
1900.	
January	2
February	1
March	1
April	6
May	5
June	4
Total	20

[Inclosure 16.]

Mortuary statistics of the city of Santiago de Cuba.

Year and month.	Leprosy.	Tuberculosis.	Yellow fever.		Pernicious fever.	Fevers other than yellow and pernicious.	Other diseases.	Diagnosis unknown.		Summary.
			Civ.[a]	Tr.[b]				Civ.[a]	Tr.[b]	
1899.										
January	....	23	......	......	29	45	117	1	......	215
February	....	10	......	......	21	19	92	4	1	147
March	....	17	......	......	16	18	74	2	1	128
April	....	16	......	......	6	7	89	1	3	122
May	....	18	......	......	5	9	63	2	4	101
June	....	13	3	11	9	7	73	3	2	121
July	....	14	9	18	12	7	51	5	......	116
August	....	17	6	......	9	8	54	1	1	96
September	3	9	3	......	4	12	44	3	......	78
October	....	10	......	1	8	6	46	3	......	74
November	....	14	......	......	4	13	54	4	......	89
December	1	12	2	......	13	12	54	2	......	96
Total	4	173	23	30	136	163	811	31	12	1,383
1900.										
January	....	11	....		16	9	83	1		120
February	....	16	....		12	1	70	2		101
March	....	14	....		10	5	72	3		104
April	....	14	....		7	8	68	3		100
May	....	14	....		15	7	80	1		117
June	....	16	....		17	9	49	4		95
Total	....	85	....		77	39	422	14		637

[a] Civilians. [b] Troops.

[Inclosure 17.]

Statistics of the port of Manzanillo, Cuba.

Month.	Vessels inspected on arrival.	Bills of health issued.	Immigrants inspected.
1899.			
November	39	27	....
December	37	30	....
1900.			
January	35	5	5
February	38	7	....
March	46	11	....
April	43	38	....
May	36	37	1
June	27	22	....
Total	301	177	6

[Inclosure 18.]

Statistics of the port of Guantanamo, Cuba.

Month.	Vessels inspected on arrival.	Bills of health issued.	Immigrants inspected.
1899.			
November	24	11	....
December	5	4	....
1900.			
January	....	....	....
February	....	....	....
March	16	8	....
April	28	19	....
May	27	12	....
June	20	10	....
Total	120	64	....

[Inclosure 19.]

Statistics of the port of Daiquiri, Cuba.

Month.	Vessels inspected on arrival.	Bills of health issued.	Immigrants inspected.
1899.			
November	6	6	
December	7	6	
1900.			
January	5	6	
February	7	7	306
March	6	6	
April	7	6	324
May	7	8	129
June	8	8	
Total	53	53	759

Marine-Hospital Service,
Office of Medical Officer in Command,
Santiago de Cuba, November 1, 1900.

Sir: I have the honor to make the following supplemental report of the transactions at this port and subports, comprising the fourth quarantine division of the island of Cuba, for the period from July 1, 1900, to and including September 15, 1900:

SANTIAGO.

This period is marked by freedom from yellow fever, a healthful condition of the city, and an improvement in the sanitary condition of the port.

The chief factors leading to this would, I think, be interesting. It may be argued that there are no nonimmunes, and therefore no material for infection from yellow fever. This can not be taken into account, as a careful canvass of the city, made by Maj. and Surg. L. C. Carr, U. S. Volunteers, showed that 1,300 nonimmunes were residing in the city.

Therefore it appears to me that the present conditions are the result of the great amount of sanitary work done under the supervision of the Medical Department, U. S. Army, in maintaining cleanliness of the streets and houses and the disinfection and redisinfection of the houses where yellow fever occurred last year.

The asphalt-paved streets, a fairly good water supply, and a good civil hospital for the poor, charitable institutions for the indigent, the arrest and deportation of nonimmune tramps, and a greater prosperity of the people are also leading factors.

No less credit, I believe, is due to the work done by the Service in maintaining a quarantine against persons and baggage from infected regions, chiefly Habana.

The absence of yellow fever during this trying and dangerous period, when yellow fever in years past was a prevailing disease, shows that much can be done to mitigate the dangers of a former endemic focus, apparently stamping it out, thereby justifying the city in maintaining a quarantine.

The rate of mortality for this period was 19.30 per 1,000. The causes of death may be seen in the following table:

Diseases.	July.	August.	September 1 to 15, inclusive.
Bronchitis			1
Enteric fever	1	2	
Heart disease	5	4	5
Intestinal diseases	10	5	2
Malarial fever	13	16	4
Meningitis, infantile	2	1	1
Nephritis	2	4	2
Pneumonia	3	7	4
Tetanus, infantile	3	4	
Tuberculosis	13	14	6
Whooping cough	3	1	
Other causes	15	13	11
Total	70	71	36

SHORE DISINFECTING PLANT.

This is furnished with a 60-inch Kinyoun-Francis steam and formalin chamber, which is frequently in use for the disinfection of baggage.

I recommend the erection of a 500-gallon cistern for supplying water to the boiler, as the present arrangement with a barrel can not be relied upon, water being supplied to certain parts of the city only at certain hours, and one barrel of water is exhausted after three disinfections.

DISINFECTING BARGE ROUGH RIDER.

A number of repairs have been made, but considerable carpenter work, painting, and fittings are yet required.

A new bichloride pump, hose, and tank are needed. The present tank is beyond repair, and I recommend that a wooden cistern be put in its place. An additional tank is also necessary for the storage of fresh water, as the present one is barely sufficient for the disinfection of two vessels. During the dry season it is frequently necessary to tow the barge alongside the wharf to obtain fresh water.

STEAM LAUNCH BRANHAM.

This launch is used for boarding purposes. A number of repairs are necessary; the machinery will be overhauled and the boat repainted.

METHOD OF INSPECTION AND CERTIFICATES OF PASSENGERS.

Passengers going to the United States or Porto Rico are examined as to their protection from smallpox and their general health; a red certificate is issued (inclosure 1), and in addition those giving satisfactory evidence as to their immunity or aclimation to yellow fever are certified to accordingly and a white certificate issued (inclosure 2).

A transcript of all certificates issued is kept in the office. The following are the statistics of certificates issued:

Certificates.	July.	August.	September 1 to 15, inclusive.	Total.
Immunes	96	63	23	182
Nonimmunes	75	18	61	154

DISINFECTION AND INSPECTION OF BAGGAGE.

The disinfection and inspection of baggage has been done in accordance with Article X, United States Quarantine Regulations to be Observed at Foreign Ports, revised edition, November 13, 1899.

Two methods are in use—steam and formaldehyde.

Such materials as are not affected by steam—wash goods, etc.—are exposed to steam applied under pressure for thirty minutes at a temperature of 220° to 230° F.

Formaldehyde (33 per cent) is applied by special apparatus attached to an ordinary Kinyoun-Francis steam chamber for half an hour at a temperature of 195° F. It was found that the most delicate fabrics could be disinfected by this method without causing the slightest injury. Containers, such as trunks, boxes, etc., are wiped out with a solution of formalin 1 part in alcohol 3 parts before the disinfected materials are packed away.

After disinfection all containers are labled "Disinfected and passed" and sealed with lead seals, stamped "U. S. M. H. S.," so the container can not be opened without tearing the label or breaking the seal.

In not a single instance has there been a complaint after disinfection of baggage from the owners. I believe this due to the more frequent use of formaldehyde disinfection applied in steam chamber.

The method of sprinkling trunks and containers has in no way been employed by me, as I had learned, when in Washington under orders to this port, of the results obtained in experiments of sprinkling formalin, made by P. A. Surg. M. J. Rosenau. It has also been my experience that fabrics of delicate colors are injured by the formalin solution. This is undoubtedly caused by the water and not the formaldehyde.

Since the epidemic in Habana baggage from that port has been disinfected.

The following are the statistics of the treatment of baggage leaving this port and such as was disinfected from Habana:

Baggage leaving Santiago.

Month.	Disinfected and passed.							Inspected and passed.					
	Formaldehyde gas.				Steam.								
	Boxes.	Bundles.	Trunks.	Valises.	Bundles.	Trunks.	Valises.	Baskets.	Boxes.	Bundles.	Trunks.	Valises.
1900.												
July	5		12	1	29	19	7	2	40	62	83	94
August					5	11	6	4	15	9	39	44
September 1 to 15	4	5	6	4	2				8	23	31	40
Total	9	5	18	5	36	30	13	6	63	94	153	178

Statistics of baggage coming from Habana.

Month.	Disinfected and passed.						Remarks.
	Formaldehyde gas.			Steam.			
	Boxes.	Trunks.	Valises.	Bundles.	Trunks.	Valises.	
1900.							
July				1	1	1	
August	4	20	19	2	8	3	16 chairs and 2 sewing machines bichlorided.
September 1 to 15		6	3				
Total	4	26	22	3	9	4	

DISINFECTION OF VESSELS.

Five vessels were disinfected prior to departure for Porto Rico; one schooner and three vessels were disinfected prior to leaving for Southern ports in the United States. All were empty iron vessels save one, and were disinfected in accordance with Article VIII of the quarantine regulations to be observed at ports and frontiers of the United States, revised November 13, 1899.

IN QUARANTINE.

All vessels coming into this port are inspected. The inspection consists in the examination of papers, passengers and crew mustered, counted, and given a visual examination.

No vessels arrived with any quarantinable disease, though several have been held on account of suspicious illness or to complete a period of five days since leaving Habana.

Nonimmune passengers from Habana have been held to complete the period of five days after leaving that port. Since July 30, 1900, all baggage from Habana for this port has been disinfected.

From August 20 to September 4, 1900, the city quarantined against nonimmunes from Cienfuegos when yellow fever appeared at that city. All baggage was disinfected at Cienfuegos for Manzanillo.

In all matters the Service is cooperating with the civil and military authorities, and at no time has my action in quarantine matters been questioned.

The following are the statistics of the vessels inspected and passed and those detained.

Month.	Number.	Tons.	In cargo.	In ballast.	Inspected and passed.	Inspected and detained.	Iron vessels.	Wooden vessels.
1900.								
July	63	63,764	57	6	57	6	50	13
August	61	52,094	52	9	60	1	51	10
September 1 to 15	28	31,445	22	6	27	1	24	4
Total	152	147,303	131	21	144	8	125	27

Flags.

Month.	United States.	British.	German.	Norwegian.	Spanish.	Haitian.	Provisional.	Total.
1900.								
July	8	10	1	6	5	7	26	63
August	7	10	2	6	5	3	28	61
September 1 to 15	3	6		3	2	4	10	28
Total	18	26	3	15	12	14	64	152

OUT QUARANTINE.

Before issuing bills of health the crew and passengers of vessels going to the United States and Porto Rico are mustered and examined. This examination is made by daylight, and as near as possible to the hour of sailing.

The consular or supplemental form of bill of health in duplicate is given to vessels destined for ports controlled by the United States. Coastwise vessels trading between Cuban ports are given a coastwise bill of health (inclosure 3).

Vessels going to foreign ports are given the Cuban bill of health (inclosure 4).

Statistics of bills of health issued.

Month.	Ports controlled by United States.	Foreign ports.
1900.		
July	44	7
August	38	3
September 1 to 15	18	1
Total	100	11

No quarantinable disease, so far as is known to me, has developed on any vessel which left this port.

FACILITIES FOR DETAINING PERSONS UNDER OBSERVATION AND FOR TREATMENT OF THE SICK.

A number of persons have been detained aboard vessels to complete the period of five days' detention since leaving the port of Habana, the time en route being counted.

One person three days from Habana via Cienfuegos arrived on board of one of the Ward Line vessels and was detained on board the *Rough Rider* to complete five days since departure from Habana.

The subject of a detention camp has been considered after the army authorities declined to permit the use of the site first selected on Magazine Island. I obtained the privilege of some property (provided I make some improvement on the present building) of high land, 99 acres in extent, the camp to be located on a plateau on the west shore of the bay, 3 miles from the city by water and about three-fourths of a mile from Magazine Island. This grant has since been withdrawn by the proprietor, as I did not receive the authority requested to make the necessary improvements, and since it is the purpose of the Service to obtain a permanent site rather than a temporary one I did not push the grant first given.

The equipment for this camp is on hand and will be necessary in order to meet the following contingencies:

Should yellow fever occur in this city, all steamship lines and U. S. Army transports would refuse to take passengers unless detained five days previous to embarkation.

Should a vessel appear with a case of yellow fever, smallpox, or other quarantinable disease, it would be necessary to detain a certain number of passengers before allowing them to enter the city.

At present the steamship line to Porto Rico refuses to take nonimmune passengers on account of quarantine against Cuba. This traffic would not be interfered with by the establishment of a detention camp.

The Army is maintaining a yellow-fever hospital, and the chief surgeon has offered to give me all possible assistance for the treatment of any cases of yellow fever which may arrive at this port.

IMMIGRATION.

A weekly and monthly report of all immigrants examined is submitted to the Bureau.

The following is a transcript of reports made from this district:

Month.	Santiago.	Manzanillo.	Guantanamo.
1900.			
July	147		2
August	47	3	
September 1 to 15	10	1	
Total	204	4	2

So much of the practice of "In and out of quarantine" and "Certification of passengers" as given above obtains at the various subports, Manzanillo, Guantanamo, and Daiquiri.

MANZANILLO.

The health and condition of the port are reported good. There have been 41 deaths, making the death rate 13.6 per 1,000. Population, 14,464.

Four cases of smallpox occurred during this period, the first case developing July 11 and the last August 17, 1900. During this period Acting Asst. Surg. R. de Socarras was instructed to issue certificates of protection against smallpox to all passengers leaving Manzanillo.

The following are the statistics of vessels inspected and passed and of bills of health issued:

Month.	Inspected and passed.	Bills of health issued to—	
		Ports controlled by United States.	Foreign ports.
1900.			
July	38	33	1
August	35	30	3
September 1 to 15	14	9	2
Total	87	72	6

GUANTANAMO.

There have been 91 deaths, making the death rate 24.26 per 1,000. Estimated population, 18,000.

Statistics of vessels entering and leaving this port.

Month.	Inspected and passed.	Bills of health issued to—	
		Ports controlled by United States.	Foreign ports.
1900.			
July	20	10	1
August	24	11	
September 1 to 15	8	5	
Total	52	26	1

DAIQUIRI.

There were 5 deaths reported for this period.

Statistics of vessels entering and leaving this port.

Month.	Inspected and passed.	Bills of health issued to ports controlled by United States.
1900.		
July	7	5
August	8	9
September 1 to 15	3	2
Total	18	16

In conclusion, I would say that harmonious cooperation with the Army has been maintained, and that I have been treated with the greatest courtesy and consideration by all army officials, often being rendered such assistance as to greatly facilitate me in my work.

Respectfully,
R. H. VON EZDORF,
Assistant Surgeon, U. S. M. H. S., Quarantine Officer,
In command South Coast, Province of Santiago.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

REPORT OF TRANSACTIONS AT THE PORT OF CIENFUEGOS, CUBA, FOR THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT OF TRANSACTIONS FROM JULY 1, 1900, TO SEPTEMBER 15, 1900, INCLUSIVE.

By Asst. Surg. F. E. TROTTER.

MARINE-HOSPITAL SERVICE,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Cienfuegos, Cuba, July 31, 1900.

SIR: I have the honor to transmit the following report of the transactions of this station and of the substations, including Casilda, Santa Cruz del Sur, Tunas de Zaza, and Jucaro for the period from November 1, 1899, to and including June 30, 1900:

In February, 1899, Surg. H. R. Carter, Marine-Hospital Service, assumed command of this station for the United States Marine-Hospital Service, Dr. Luis Febels being appointed temporary quarantine officer. The latter acted in that capacity until March 22, 1899, when he was succeeded by Asst. Surg. S. B. Grubbs, United States Marine-Hospital Service, who remained in command until November 25, 1899, when he was transferred to Habana, Acting Asst. Surg. J. M. Lindsley assuming command

and retaining same until April 29, 1900, when he was succeeded by Asst. Surg. F. E. Trotter, United States Marine-Hospital Service.

When Surgeon Carter assumed command of this station there was absolutely no disinfecting plant whatever, and his first step was the erection of a frame building (36 feet in length by 21 feet in width), which was situated on the end of the wharf and in which was installed a boiler and steam chamber, formerly used by the Spaniards at Santa Clara, and which was captured by the U. S. Army and turned over to the United States Marine-Hospital Service for use at this station. The steam chamber is of the Geneste-Hercher type, 5 feet in depth and 8 feet in length, and as the amount of disinfection done at this station is not large, it admirably fulfils all the purposes required.

There is also on hand and in good condition 3 autoclaves, Kensington No. 8; 25 sulphur pots; 2 hand pumps, Challenge, and 300 feet of rubber hose.

For boarding and inspecting incoming vessels the station is provided with one steam launch (the *Urquhart*), in excellent condition, and one 16-foot Whitehall boat. The latter, owing to its size and lightness, is of no use except in very calm weather and when the water is very smooth.

The detention camp is located on Punta Ladrillos, an isolated peninsula lying on the opposite side of the bay and 4 miles from the city. A landing can be made by means of a small wharf (in good condition), at which there is just enough water to enable the launch to get alongside. The camp has been used twice since established—once for isolating the men from the training ship *Lancaster*, and again for the isolation of the soldier removed from the U. S. army transport *Sedgwick*.

INSPECTION OF INCOMING VESSELS.

At the present time all vessels arriving at this port, with one or two exceptions, are inspected upon arrival—coasting vessels at the wharf and vessels from foreign ports in the bay at anchor. The exception mentioned above are the Menendez steamers from Batabano, which were admitted without inspection for the following reasons:

1. Intimate connection between the two ports by rail.
2. Inspection of steamers at Batabano a few hours prior to arrival at this port.

At the inspection the bill of health, crew, and vessel are each examined in order, and if there is no sickness reported in port of departure or intermediate ports en route, the vessel is granted free pratique. Vessels arriving from infected ports are allowed to discharge cargo in quarantine, no communication being allowed between the vessel and shore except by written order of the quarantine officer.

Owing to the presence of yellow fever in Santiago last fall the quarantine restrictions were not removed at this port on the 1st of November, but were delayed till the 15th of the month, after which date inspection of all vessels arriving at this port, except those from foreign ports, was omitted.

The only occurrence worthy of note during the open quarantine season was the arrival at this port of the training ship *Lancaster* with yellow fever aboard, the cases being removed to the detention camp. These cases, nine in number, all made successful recovery.

From the commencement of the quarantine season up to the present time passengers arriving on steamers from Habana less than five days from that port have been allowed to land, but owing to the rapid spread of the fever in Habana passengers arriving by boat from Habana will have their baggage inspected and, if necessary, disinfected.

In case of a vessel arriving with sickness of a quarantinable nature on board, the vessel would be placed in quarantine, the sick and suspected removed to the detention camp, and the vessel thoroughly disinfected.

OUTGOING PASSENGERS.

All passengers for the United States and Porto Rico are required to obtain a health certificate and have their baggage inspected and passed or disinfected, as the case may be, before they are allowed on board the vessel in which they are to take passage.

Passengers not presenting a good vaccination mark are revaccinated. Vessels bound for the United States and Porto Rico are inspected with crew and passengers prior to sailing.

Vessels bound for the Southern ports and desiring disinfection here are so treated. The only vessels we are fumigating are those of the Jover line (Spanish), which are disinfected prior to departure for New Orleans.

METHOD OF DISINFECTING VESSELS.

All the vessels disinfected at this station this season have been of iron, and the first step in the treatment of these vessels has been washing down of the holds and bilge with a solution of bichloride, 1:1,000, following which sulphur pots were left in holds from sixteen to twenty-four hours. Officers' and passengers' cabins and saloons were disinfected by means of formaldehyde gas. Time of exposure, from six to ten hours. Bedding, mattresses, and clothing of ship's crew were taken ashore and disinfected by steam; disinfected articles were then returned to ship and crew then made a shift, clothing worn by the men being removed and taken ashore and disinfected. At the expiration of twenty-four hours the sulphur pots were removed and the decks, forecastle, etc., washed down with a solution of bichloride, 1:800. Vessel was then issued certificate of disinfection, of which one is inclosed.

DISINFECTION OF BAGGAGE.

Baggage leaving this port and district for a point north of the Maryland border, if clean, is "Inspected and passed." If it contains any dirty articles of bedding, etc., it is disinfected. Baggage bound for a point in the United States south of Maryland border is disinfected. Baggage is disinfected by either steam or formaldehyde according to the character of the articles.

Labels used for baggage are herewith inclosed.

In closing this report I would respectfully submit the following recommendations for the consideration of the Bureau:

1. The removal of the detention camp to a more suitable site, land for the purpose being either purchased or rented. The present camp is situated on land which is low and swampy, the place being infested with mosquitos and sand fleas, and the heavy wind and rain storms which occur during the summer months, and consequently the quarantine season, render any degree of comfort to be impossible for either the attendants or patients.

2. The construction of a small office adjacent to the disinfecting plant (plans of which have already been forwarded to the Bureau). The necessary building could be erected at a cost of $1,700 and would greatly add to to the efficiency and smooth working of the station.

Number of deaths per month from November 1, 1899, to June 30, 1900, including the deaths occurring in the civil hospital.

November, 69; 18 in civil hospital.
December, 98; 20 in civil hospital.
January, 123; 39 in civil hospital.
February, 98; 25 in civil hospital.
March, 88; 25 in civil hospital.
April, 72; 11 in civil hospital.
May, 70; 14 in civil hospital.
June, 86; 15 in civil hospital.

Number of vessels, crews, and passengers, per month, from November 1, 1899, to June 30, 1900.

Month.	Vessels.	Crews.	Passengers.
1899.			
November	64	1,965	689
December	26	1,112	202
1900.			
January	32	1,423	243
February	34	1,316	108
March	28	1,198	321
April	37	1,098	249
May	34	963	171
June	64	1,516	785

Number of immigrants, per month, permitted to land at this port.

1899.	
November	18
December	29
1900.	
January	41
February	3
March	129
April	24
May	9
June	13

The following vessels were disinfected at this port from November 1, 1899, to June 30, 1900:

November 11, steamship *Euskaro*, New Orleans.
February 19, training ship *Lancaster*, a port in the United States.
April 8, steamship *J Jover Serra*, New Orleans.
May 17, steamship *Algiers*, New Orleans.
June 17, steamship *Miguel Jover*, New Orleans.

Number of pieces of baggage disinfected	272
Number of pieces of baggage inspected and passed	406
Number of health certificates issued to passengers	361
Number of persons vaccinated	43

March 26, disinfected 1,000 woolen blankets formerly used by the Spanish soldiers, after which they were sold to the railway company here.

July 7, disinfected 291 barrels of empty bottles collected in various parts of the city before allowing them to be loaded on the steamship *Heim*.

July 27, disinfected 249 barrels of empty bottles before allowing them to be loaded on the steamship *Heim*.

Respectfully,

F. E. TROTTER,
Assistant Surgeon, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure 1.]

The following is a translation received from the substation at Santa Cruz del Sur, dated July 27, 1900:

Asst. Surg. F. E. TROTTER,
United States Marine-Hospital Service, Cienfuegos, Cuba.

SIR: In answer to your communication of July 12, 1900, I have to report as follows:

Births and deaths in Santa Cruz del Sur from November 1, 1899, to June 30, 1900.

Month.	Births.	Deaths.
1899.		
November	25	2
December	21	3
1900.		
January	13	3
February	20	1
March	24	....
April	20	4
May	13	9
June	5	5

From November to June I have vaccinated 32 persons in this city and 1 on board the steamship *Reina de los Angeles*.

Can say nothing regarding contagious diseases in this port, for, fortunately, we have had none during the period you refer to. No typhoid; no smallpox; no cholera; no yellow fever. I have kept but a few notes, without dates, of the cases which I have attended.

The following is a brief description of my method of inspecting all vessels:

When a vessel arrives in sight I go a mile from shore in a boat, and upon arrival of the vessel I ask if there is any sickness on board. When answered in the negative, I go on board alone and enter the exact number of persons on board, then immediately review the crew and passengers, paying attention to the physical condition of each person; then examine the bill of health and question the captain in regard to cargo and ports called at on voyage, and, if nothing suspicious is discovered, give free pratique to vessel.

I always carry on board my boat when boarding vessels alcohol lamp, test tube, clinical thermometer, bottle of carbolic and nitric acid, sulphur, and bichloride of mercury.

This city has a population of 1,000, and there is a great amount of tuberculosis existing here, caused by the families living too closely together and paying no attention whatever to hygienic laws, in spite of the advice given them by the doctors here.

They will not allow disinfection in their homes nor isolate any person having tuberculosis.

There have been some deaths from measles.

There have been several cases of grippe here in the past few months, and in my opinion, it is very closely allied to dengue fever.

The prevailing diseases in this vicinity are malaria and intestinal diseases.

Respectfully,

JUAN R. XIQUES.

[Inclosure 2.]

The following is a translation of report received from the substation at Casilda, Cuba:

Asst. Surg. F. E. TROTTER,
United States Marine-Hospital Service, Cienfuegos, Cuba.

SIR: I have the honor to forward the following report for Trinidad, of which Casilda is the port, from November 1, 1899, to June 30, 1900:

Births	184
Deaths	217
Vaccinations in city	850
Vaccinations in country	106

General health of vicinity is good, malaria and intestinal diseases being more or less prevalent among the poorer classes.

Respectfully,

ALEJANDERO CANTERO.

MARINE-HOSPITAL SERVICE,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Cienfuegos, Cuba, September 19, 1900.

SIR: In compliance with Bureau letter dated Washington, D. C., July 7, 1900, I have the honor to herewith submit the following supplementary report of the transactions at this station and of the substations of this quarantine district for the period from July 1 to September 15, 1900, inclusive.

The only event worthy of note in connection with quarantine matters was the occurrence of a case of yellow fever on the U. S. transport *Sedgwick* on July 19. The patient was removed to the detention camp, isolated, and there made an uneventful recovery.

The following additional cases of yellow fever have been reported as occurring in this quarantine district since July 1:

Date.	Place.	Number.	Recovered.	Died.
July 2	Trinidad	1	1	
August 14	Cienfuegos	1		1
August 17	do	1		1
August 19	do	1		1
September 8	do	1	1	
Total		5	2	3

With the single exception of the case of yellow fever removed from the transport *Sedgwick*, there has been no other sickness of a contagious nature among the shipping during the present season, either at this port or at the other three substations of this district, a record, I consider, that is worthy of mention.

In regard to the case of yellow fever here in this city, it is impossible to say where the first case received its infection. This case was that of Bernard, the employee of Swift & Co., who had previously been both in Habana and Matanzas, and it is probable that at one of the above places he received the infection.

The two cases following closely after Bernard undoubtedly received their infection from him.

The last case, reported on September 8, is now convalescing in the lazaretto. This woman came from Habana and was ill on arrival at Cienfuegos, but it was not till some days later that she was seen and removed to the lazaretto.

During the past month the baggage of passengers arriving from Habana via Batabano by Menendez steamer and destined for Santiago and Manzanillo has been disinfected on arrival here. At present there is but one steamer a week, and the baggage arriving averages about 20 pieces per steamer.

Since July 1 5 vessels have been disinfected at this station, 3 being steamers of the Jover Line, which make regular trips between Spain, Cuba, and New Orleans. The remaining 2 vessels were steamers of the Morgan Line, carrying cattle from New Orleans to this port.

Inclosed herewith is a recapitulation of the reports of this station and substations at Casilda, Santa Cruz del Sur, and Tunas de Zaza from July 1 to September 15, 1900, inclusive.

	Cienfuegos.	Casilda.	Santa Cruz del Sur.	Tunas de Zaza.
Deaths in city	205	71	6	
Deaths in civil hospital	53			
Vessels inspected	141	44	60	1
Members of crews inspected	3,151			
Passengers inspected	2,310			
Alien steerage passengers inspected	13			
Vessels disinfected	5			
Baggage disinfected	397			
Baggage inspected and passed	310			
Bills of health issued	92			
Health certificates issued	362			

Respectfully,

F. E. TROTTER,
Assistant Surgeon, U. S. Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

PORTO RICO.

ESTABLISHMENT OF NATIONAL QUARANTINE IN PORTO RICO.

In an act to provide revenues and a civil government for Porto Rico and for other purposes, approved April 12, 1900, the following provision occurs:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

* * * * * * *

SEC. 10. That quarantine stations shall be established at such places in Porto Rico as the Supervising Surgeon-General of the Marine-Hospital Service of the United States shall direct, and the quarantine regulations relating to the importation of diseases from other countries shall be under the control of the Government of the United States.

* * * * * * *

SEC. 41. That this act shall take effect and be in force from and after the first day of May, nineteen hundred.

TRANSFER OF MIRAFLORES ISLAND, IN THE HARBOR OF SAN JUAN, FROM THE WAR DEPARTMENT TO THE TREASURY DEPARTMENT, FOR USE AS A QUARANTINE STATION.

On September 5, 1899, Brigadier-General Davis, U. S. Army, temporarily transferred the island of Miraflores and the public buildings thereon to the Marine-Hospital Service for use as a quarantine station, and directed that they be put in order and so maintained by the board of public works. This transfer was made in exchange for Cabras Island, formerly occupied by the Marine-Hospital Service, which was desired for a leper colony. On June 23, 1900, a letter was addressed to the honorable the Secretary of War, requesting that said Marine-Hospital Service be confirmed in its possession of Miraflores Island for quarantine or marine-hospital purposes.

FLOATING DISINFECTING PLANTS IN PORTO RICO.

On January 26, 1900, an Executive order was issued transferring the sum of $40,000 from the emergency fund, War Department, act of March 3, 1899, to the Treasury Department, to be used in the construction of quarantine plants in Porto Rico. A hulk of a sailing vessel has been purchased for conversion into a floating plant for the port of San Juan and is now in course of construction at the port of Philadelphia. It is contemplated to provide a similar plant for the port of Ponce.

RELATIVE TO THE NECESSITY FOR BILLS OF HEALTH IN THE CASE OF VESSELS PLYING BETWEEN THE PORTS OF PORTO RICO AND THE UNITED STATES.

On June 19, 1900, the medical officer in command, San Juan, P. R., reported that a schooner had arrived at San Juan from New York without a bill of health, and that the master of said schooner claimed that as she was a coastwise vessel no bill of health was required. The matter was referred to the Commissioner of Navigation June 27, 1900, and the letter was returned with the following indorsement:

TREASURY DEPARTMENT, BUREAU OF NAVIGATION,
June 28, 1900.

Respectfully returned to the Supervising Surgeon-General Marine-Hospital Service. This Bureau is aware of no law which requires vessels clearing from the United States for ports in Porto Rico to take out bills of health.

E. T. CHAMBERLAIN, *Commissioner.*

Inquiry was then made regarding vessels bound for United States ports from Porto Rico, to which reply was made as follows:

BUREAU OF NAVIGATION, TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, D. C., July 5, 1900.

SIR: Referring to your letter dated the 19th instant (ultimo?), this Department has to state that in its opinion vessels entering in the United States from a port in Porto Rico at which a medical officer is stationed, as mentioned in the act of February 15, 1893, are required by law to present bills of health, as provided for by said act.

Respectfully,

H. A. TAYLOR,
Assistant Secretary.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

NECESSITY FOR SUPPLEMENTAL BILLS OF HEALTH IN THE CASE OF VESSELS TOUCHING AT THE SMALLER PORTS OF PORTO RICO.

On August 13, 1900, the medical officer in command at San Juan inquired whether vessels touching at the smaller ports of Porto Rico and then clearing from San Juan for New York were required to secure at each of said smaller ports a supplemental bill of health. The Bureau rendered the following decision:

AUGUST 27, 1900.

SIR: Referring to your letter of the 13th instant, requesting information regarding the necessity for supplemental bills of health from the various subports of Porto Rico in the case of vessels plying between New York, San Juan, and numerous small coast towns, your attention is called to Bureau letter of July 9, 1900, informing you of the decisions of the Treasury Department regarding the necessity for bills of health in the case of vessels plying between Porto Rico and the United States.

While in Department letter of July 5, 1900, the inference is drawn that bills of health are only required from ports in Porto Rico at which medical officers are stationed, the law of 1893, section 2, prescribes "That any vessel at any foreign port clearing for any port or place in the United States shall be required to obtain from the consul, vice-consul, or other consular officer of the United States at the port of departure, or from the medical officer where such officer has been detailed by the President for that purpose, a bill of health, in duplicate, in the form prescribed by the Secretary of the Treasury, setting forth the sanitary history and condition of said vessel, and that it has in all respects complied with the rules and regulations in such cases prescribed for securing the best sanitary condition of the said vessel, its cargo, passengers, and crew. * * *

Article I, paragraph 1, of the Quarantine Regulations to be observed at Foreign Ports and at Sea prescribes that "Masters of vessels departing from any foreign port for a port in the United States must obtain a bill of health in duplicate signed by the proper officer or officers of the United States as provided for by law, except as provided for in paragraph 5."

Paragraph 3 of the same regulations prescribes that "Vessels clearing from a foreign port for any port in the United States, and entering or calling at intermediate ports, must procure at all said ports a supplemental bill of health, signed as provided in Article I."

If a collector of customs or other United States official to whom the duty of issuing bills of health has been legally assigned is located at the subports of Porto Rico, where the vessels in question touch, such vessel should secure supplemental bills of health at each of said ports.

Respectfully,

Walter Wyman,
Supervising Surgeon-General Marine-Hospital Service.

Asst. Surg. C. H. Lavinder,
U. S. Marine-Hospital Service, San Juan, P. R.

REGARDING THE ENTRY OF VESSELS AT THE PORTS OF PORTO RICO WHERE NO QUARANTINE OFFICER IS STATIONED.

A report having been received by the Bureau from the medical officer in command Marine-Hospital Service, San Juan, to the effect that certain vessels were entering small ports at which no quarantine officer was stationed, the honorable the Secretary of War was requested to issue an order requiring that such vessels be inspected at some near-by port, where a quarantine officer was stationed, before entering the small ports above mentioned. In accordance with this request the following general order was issued by the War Department:

General Orders, No. 64.

Headquarters Department of Porto Rico,
San Juan, March 27, 1900.

1. All vessels not engaged in the coastwise trade must come to at the nearest port of entry before proceeding to a port of delivery, and there make a report of entry in writing, and pay all duties and port charges before such vessel shall proceed to her port of delivery. Any master of such vessel who shall violate this order shall be subject to a fine of $500.

2. Paragraph 2, General Orders, No. 136, series of 1899, from these headquarters, is hereby revoked.

3. This order shall take effect on April 15, 1900.

By command of Brigadier-General Davis:

W. P. Hall, *Adjutant-General.*

SAN JUAN.

Report of the Medical Officer in Command at San Juan on Repairs and Improvements made at that Station during the Fiscal Year ended June 30, 1900.

Office of Medical Officer in Command,
Marine-Hospital Service,
San Juan, Porto Rico, July 10, 1900.

Sir: Complying with paragraph 644, Revised Regulations, I have the honor to submit the following report of repairs and improvements which have been made at this station during the fiscal year ended June 30, 1900:

The buildings on Miraflores Island, consisting of an old powder magazine 150 feet in length by 30 feet wide, the garrison's quarters of four rooms, and a small guardhouse, were renovated and remodeled by the military board of public works. A disinfecting building and bath house were erected near the landing place. Sanitary closets and plumbing were installed, and a small steam pump was purchased for use in pumping the water from the spring to the tank on top of the main building, from which it is piped to the various parts of the station. The total cost of all of this work was $6,000.

By order of the commanding general the buildings were turned over to the Service at this port for use as a quarantine station, and were occupied on November 27, 1899. Since the occupancy the following repairs and improvements have been made:

A storeroom was partitioned off and six tent floors and frames were constructed at a cost of $30.60 for the services of a carpenter, the material being on the station. A small medicine case and kitchen cupboard were made from material on the station at a cost of $14.40 for labor. Latticed compartments, each large enough to hold the contents of a trunk, were put in the formaldehyde room at a cost of $7.20 for labor.

A kitchen for the hospital and a workshop, being an urgent necessity, were constructed of rough lumber at a cost of $39 for labor. Twelve bunk frames, of three bunks each, were constructed at a cost of $125 for labor and material. These bunks are intended for use of steerage passengers and crews.

Three new flush water-closets have been put in at a cost of $225, and the old plumbing has been repaired at a cost of $27. The new closets are for the use of passengers. An extension of 10 feet has been made to the wharf for the small boats, the cost amounting to less than $2 for nails, the work being done by the attendants, who used some old material on the station.

The sailboat was repaired during July at a cost of $57, but was lost a few days later in the hurricane. A new boat was bought to replace it for the sum of $180, and has been giving good service. A small rowboat was purchased, also, for $48, for use as a boarding boat during calm weather or when the other boat was out of commission. All of these boats have been hauled out and painted three or four times during the year by the attendants, at a cost of about $25 for material.

The grounds have been cleared off around the buildings and walks have been laid off. About 500 young tropical trees have been set out, and quite a number are growing nicely. These trees were presented to the station by Sanitary Inspector Fernando Aleman, of the Service, who is on duty at Arecibo.

Respectfully,

C. H. LAVINDER,
Assistant Surgeon, Marine Hospital Service.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

REPORTS OF MEDICAL OFFICER IN COMMAND AT SAN JUAN ON REPAIRS AND IMPROVEMENTS NECESSARY AT THAT STATION.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
San Juan, Porto Rico, July 11, 1900.

SIR: In compliance with paragraph 645, Revised Regulations, I have the honor to submit the following estimate of repairs needed at this station, payable from the appropriation "Repairs and preservation of public buildings:"

A hot air engine pump is required to pump water from the well to the station tank during the dry season when the water in the spring is low. The three cypress cisterns of capacity of 900 gallons each, which were purchased last fall, should be set up over the well on brick pillars or other substantial structure, and water piped from them to the buildings, as the present tank does not supply an adequate amount when there is a greater consumption of water during the detention of passengers. The cost of the engine and piping, including setting up the cisterns, is estimated at $900.

The metal roof over the passageway of the detention building leaks at various places where the zinc plates are fitted around the pillars, and should be repaired. Cost estimated at $150.

Three of the windows of the detention building should be cut through and converted into doors, so as to make access to the closets from the rooms much more easy and convenient. Estimated cost, $35.

Screen doors and windows should be provided for the rooms of the detention building and some improvement made in the mode of ventilation. Cost estimated at $350.

The footbridge leading to the mainland and the cement wharf are in need of immediate repair, and authority has been requested to purchase material to make the necessary repairs.

Respectfully,

C. H. LAVINDER,
Assistant Surgeon, Marine-Hospital Service.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
San Juan, Porto Rico, July 11, 1900.

SIR: Complying with paragraph 645, Revised Regulations, I have the honor to submit the following estimate of new construction required at this station and which requires special appropriation by Congress for the fiscal year ending June 30, 1902:

Surgeon's quarters are badly needed at this station to enable the commanding officer to live on the reservation. Estimated cost of suitable brick structure with veranda, $8,000.

An executive building, with steward's quarters on the second floor and storerooms, etc., in the basement, should be erected; estimated cost, $7,000. This building is badly needed, as there is no building at present which can be utilized for this purpose.

Attendants' quarters are also urgently needed, as the men are now occupying one of the rooms in the detention building and are crowded. It is also inconvenient and manifestly a bad practice to have them quartered in the detention building. The cost of a suitable building is estimated at $3,000.

A steam laundry is very necessary for the station, as at present the station is poorly equipped, having no machinery whatever, all of the work being done by hand. The estimated cost of machinery and a frame building for use as a laundry is $3,000.

A new lazaretto with modern improvements is also necessary, as the present building is so small that it is necessary to use tents, and these are not suitable for occupancy during the rainy season. A small building for a suspect hospital is also needed, a tent being used for the purpose at present. Estimated cost of the lazaretto $1,500 and of the suspect hospital $300.

A crematory is also required; estimated cost $1,250.

These improvements will be necessary if the island of Miraflores is to be used for quarantine purposes solely, but if it is to be used for marine-hospital purposes also other improvements will be necessary. (See map transmitted on July 10, 1900.)

Respectfully,

C. H. LAVINDER,
Assistant Surgeon, Marine-Hospital Servic

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

REPORT OF TRANSACTIONS AT THE PORT OF SAN JUAN, P. R., FOR THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT FROM JULY 1, 1900, TO SEPTEMBER 15, 1900.

By Asst. Surg. C. H. LAVINDER.

SAN JUAN, P. R., *August 14, 1900.*

SIR: In compliance with your letter of July 7 (RMW, G) directing me to submit a report on the transactions of the Service under my command, from November 1, 1899, to and including June 30, 1900, I have the honor to submit the following:

Buildings and grounds.—Miraflores Island and detention station, a complete description of which was given by Surgeon Glennan in his annual report, under date of October 1, 1899, was formally occupied by the Service on November 27, 1899. Since this occupancy many minor improvements have been made, and the island is now in very good condition. A large part of the undergrowth has been cleared off, walks and roads have been laid out, trees and shrubs planted, and such repairs have been made as the appropriation at our command would warrant. A detailed list of these additions and repairs was submitted in my letter of July 10, 1900, making report of repairs and improvements during fiscal year ending June 30, 1900.

In addition to the island, we are occupying rented offices in the city of San Juan, near the water front.

Disinfecting plant.—A full description of this was also given by Surgeon Glennan in his last annual report. Since then no additions have been made of consequence. A barge was purchased for this station, however, some months ago, and is now being fitted up for disinfecting purposes in the States. When this is completed and transported here the station will be well equipped.

Vessels and boats.—The equipment of the station consists of two small rowboats, a rather large sailboat, and a Spanish falua. In addition to these, a 30-foot naphtha launch was loaned the Service by the military government during the latter part of January, 1900. This was at once put in commission and has proved of the greatest service in boarding vessels and in maintaining communication with the island. We were informed, however, that this boat would have to be given up on or about July 1.

Employees and their duties.—The following is a list of the employees on duty at this station June 30, 1900: Pedro del Valle, sanitary inspector, boarding officer; A. J. Stevens, attendant, acting engineer; Jose Tejidor, attendant, acting coxswain; L. Garcia-Neander, attendant, acting clerk; Juan Birier, attendant, acting vice coxswain; Aniceto Colon, attendant, acting assistant engineer; Juan Esquelin, attendant, acting cook; Damaso Oquendo, attendant, acting sailor; Juan Henriquez, attendant, acting sailor; J. Ramon Vasquez, attendant, acting sailor; Alejandrino Vasquez, attendant, acting room man; Juan Rivera, attendant, acting sailor; Norberto Pizarro, attendant, acting yard man; Guillermo Geigel, attendant, acting messenger. The duties of night watchman are performed by the sailors, each serving one week at this duty in rotation. No attendant is detailed to do laundry work at present. This is done by employing help when needed.

Out quarantine.—The harbor of San Juan is rather small, and the quarantine anchorage lies opposite the city in a southeasterly direction. All vessels are inspected here before coming into closer anchorage or the docks. So far as inspection is concerned, the vessels arriving here during the period embraced by this report may be divided into four classes: First, vessels from clean ports, which are inspected at the quarantine grounds without dropping anchor and come into the docks at once; second, vessels arriving from Spanish ports, which have been required to anchor in the quarantine grounds and submit to a most complete inspection of personnel, vessel, and baggage. Baggage destined for Porto Rico and not properly labeled was sent at once to the island for disinfection. The vessel was then released if all were found well; third, vessels arriving from Cuban ports which had been disinfected by Service officers at their last port; these when carrying only immunes were released at once if all were well, but if carrying nonimmunes the nonimmunes were held, either aboard or elsewhere, to complete a five-day period from exposure to infection; fourth, vessels arriving from Cuban, Central American, Mexican, or northern South American ports not disinfected before arrival. These, if all were well and they were more than five days from their last-infected port, were allowed to discharge passengers, their baggage being disinfected, and cargo which had been carefully inspected, but the vessel and all transit passengers were held in quarantine under guard during her stay in this port. The outward-bound passengers were taken in quarantine and only passengers leaving Porto Rico were allowed to go aboard.

In quarantine.—Miraflores is equipped with a steam chamber, autoclaves, and an air-tight room for the use of formaldehyde gas. With this equipment all baggage requiring disinfection has been handled there. Non immune passengers from infected ports have been detained in the detention building there when necessary, the island for the time being placed in quarantine with the steward and one medical officer in charge. Bills of health and vaccination certificates have been issued at the city office. The freedom of Porto Rico from infectious diseases has not rendered necessary any elaborate method of certifying or checking passengers and baggage. Besides the usual blank forms and baggage checks, only one other local form is used here. This which relates to reports from the subports is inclosed herewith.

Subports.—There are five subports reporting to this office, at each of which there is stationed a sanitary inspector of the Service. These ports are Mayaguez, Arecibo, and Aguadilla on the west, Arroyo on the south, and Humacao on the east.

Statistics.—From November 1, 1899, to June 30, 1900, the following is a summary of the work of the station at San Juan and at the subports:

	San Juan.	Subports.
Vessels inspected ....number..	345	261
Vessels disinfected ....do....	0	....
Vessels quarantined ....do....	15	3
Baggage disinfected ....pieces..	417	....
Passengers inspected ....number..	14,492	3,166
Crew inspected ....do....	19,422	7,113
Persons in quarantine at island ....do....	44	....
Persons vaccinated ....do....	37	....
Persons inspected and given certificates ....do....	374	....

The inspection of alien immigrants by the Service was begun in February. The number inspected has been made the subject of a separate communication.

Miscellaneous.—The officer on duty at this port served a term on the superior board of health of Porto Rico. On the 1st of May, however, with the advent of civil government, he, with all other Federal officers, was relieved from this duty.

The various quarantines which many of the surrounding islands held in force against Porto Rico at the time the Service assumed charge here have now all, I think, been removed. This I take as an evidence of the confidence which the administration of the Service in Porto Rico has inspired.

The internal health conditions of Porto Rico have, I am sorry to say, been but little improved during these months, and the mortality is high. Fortunately we have escaped so far the visitation of any epidemic disease. This, however, we can not always expect to do, and it is to be hoped that this question will receive the consideration it requires at the hands of the civil government.

Respectfully submitted.

C. H. Lavinder,
Assistant Surgeon, M. H. S.

Supervising Surgeon-General Marine-Hospital Service.

SUPPLEMENTAL REPORT FROM SAN JUAN.

Office of Medical Officer in Command,
Marine-Hospital Service,
San Juan, Porto Rico, September 22, 1900.

Sir: In compliance with your instructions of July 7 (RMW, G), I have the honor to submit below a supplementary report on the service under my command for the period July 1 to September 15, 1900:

Vessels and boats.—On July 2 the naphtha launch loaned the Service at this port by the military governor was, upon the request of the collector of customs for Porto Rico and under the orders of the Secretary, transferred to the customs service, by whom it was originally purchased. This left us with only our small boats for a time. On August 4, however, a new 40-foot steam cutter was received for the use of this station. This handsome launch was put in commission on August 9, and has since that date been in constant use. It is needless to say that with this addition the boarding equipment here is complete in all respects.

Employees and their duties.—Following is the personnel of this station: Asst. Surg. C. H. Lavinder, in command; Sanitary Inspector Pedro del Valle, boarding officer; Hosp. Steward F. J. Herty, steward; Attendant A. J. Stevens, acting engineer; Attendant Serapio Natal, acting engineer steam launch; Attendant Juan Birier, acting coxswain steam launch; Attendant Damaso Oquendo, acting vice-coxswain; Attendant Aniceto Colon, acting fireman steam launch; Attendant Juan Esquelin, acting cook; Attendant Alejandrino Vazquez, acting room man; Attendant Juan Rivera, acting sailor; Attendant J. Ramon Vazquez, acting sailor; Attendant Juan A. Diaz, acting sailor; Attendant Jose Bombino, acting sailor; Attendant (vacancy), acting yard man; Attendant J. Garcia Neander, acting clerk; Attendant Guillermo Geigel, acting messenger.

Subports.—The number of subports reporting to this office has been increased by one, making six in all. Dr. Esteban Lopez was appointed sanitary inspector (later designation changed to acting assistant surgeon) at the port of Fajardo on July 5. This appointment was necessitated by reason of the opening of this as one of the ports of entry of the island, under the orders of the Secretary.

Statistics.

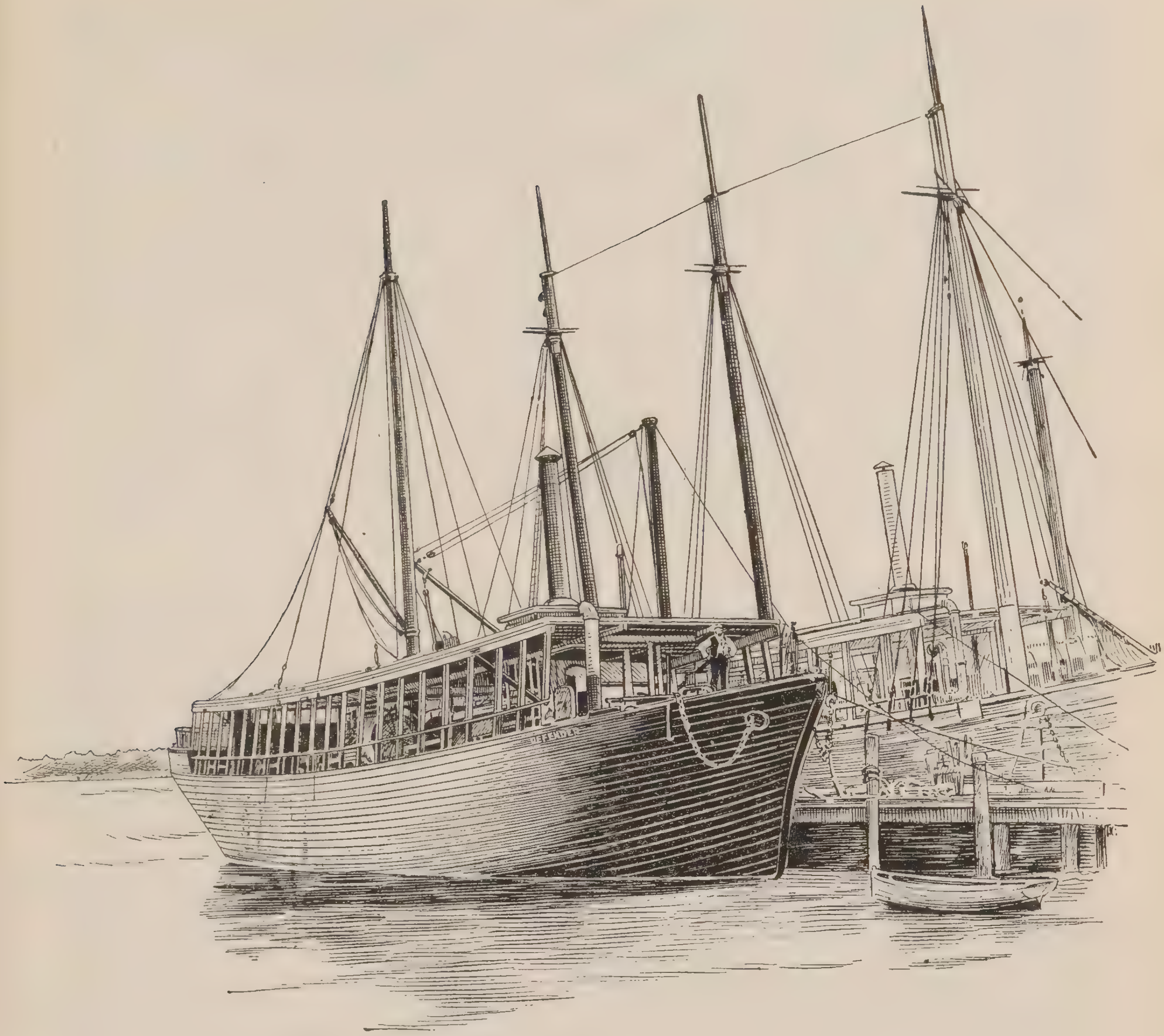
	San Juan.	Subports.
Vessels inspected .... number..	71	51
Vessels disinfected .... do....	1	....
Vessels quarantined .... do....	3	....
Baggage disinfected .... pieces..	270	....
Passengers inspected........ number..	2,782	521
Crew inspected .... do....	3,861	1,672

The following is the number of immigrants inspected during the period embraced in this report: San Juan, 89; rejections, none. Subports, 12; rejections, none.

Respectfully submitted.

C. H. Lavinder,
Assistant Surgeon U. S. M. H. S., Chief Quarantine Officer for Porto Rico.

Supervising Surgeon-General Marine-Hospital Service.



Disinfecting barge "Defender," San Juan quarantine.

PONCE.

REPORT OF TRANSACTIONS AT THE PORT OF PONCE, PORTO RICO, FOR THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT FROM JULY 1, 1900, TO SEPTEMBER 15, 1900.

By Asst. Surg. W. W. KING.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Ponce, Porto Rico, July 30, 1900.

SIR: In accordance with Bureau letter (R. M. W. & G.) of July 7, 1900, I have the honor to submit the following report of transactions at the port of Ponce from November 1, 1899, to and including June 30, 1900:

Crew inspected	number	4,788
Vessels inspected	do	224
Bills of health issued	do	214
Vessels disinfected	do	0
Vessels in quarantine	do	16
Passengers in transit inspected	do	2,272
Passengers, incoming, inspected	do	790
Passengers, outgoing, inspected	do	879
Baggage inspected	pieces	214
Baggage disinfected	do	96
Passengers whose baggage was disinfected	number	57
Vaccination certificates stamped	do	871

The quarantine work of this station has been principally boarding and inspection, with some little disinfection of baggage. The vessels coming to this port are chiefly American vessels from the United States and Venezuela, Canadian vessels from Canada, one line of Cuban steamers from Cuba, one line of French steamers from various West Indian islands, and the trans-Atlantic Spanish and Italian lines calling at this port on their way to Cuban, Mexican, Central and South American ports. These latter vessels are the most dangerous, as on their return trip they come direct to this port from these yellow-fever ports. They bring practically no cargo on their return trips.

Fortunately no vessel arrived having any quarantinable disease on board. Vessels arriving from an infected or suspicious port—if five full days from that port—are allowed to land passengers with disinfection of their baggage. If not five days from these ports the vessel is held to complete that time, when landing is allowed as above. Third-class passengers in transit are not allowed to land. Such quarantine arrangements are not satisfactory, but are the best possible at present.

The disinfecting equipment consists of a disinfecting room, two autoclaves and bichloride of mercury, and carbolic acid.

The disinfecting room has been recently built in the custom-house shed on the landing dock. It is lined with galvanized sheet iron and has proved very satisfactory, but needs some few improvements. Some disinfection has been done by sprinkling before the completion of this room. Formaldehyde gas is used in this room.

Boarding is done with the customs officer in the custom-house boat. Officers, crew, and passengers are personally inspected, except on those vessels coming but a few hours before from another island port, where they are inspected. In these cases only the master's statement is taken. Only those personally inspected have been counted in the above summary, as the others will be included in reports from other island stations.

Inspection of outgoing passengers has been limited to stamping vaccination certificates which are usually brought by the persons themselves; thus it includes an inspection of them. Several ship loads of emigrants left this port for Cuba; in which cases the vessels and passengers were inspected before sailing. All immigrants are physically examined in accordance with the United States immigration laws.

Bills of health have been issued to vessels bound to the United States or ports in its possession. Bills of health are frequently issued to vessels bound to ports of other countries when asked for by the captains. It seems that the United States bill of health is recognized as being very reliable.

Weekly reports of the sanitary condition, mortality, etc., of Ponce and the district have been furnished the Bureau.

Respectfully,

W. W. King,
Assistant Surgeon, M. H. S.

Surgeon-General, Marine-Hospital Service.

SUPPLEMENTARY REPORT FROM PONCE.

Office of Medical Officer in Command,
Marine-Hospital Service,
Ponce, P. R., September 15, 1900.

Sir: I have the honor to submit herewith supplemental report of the transactions at the port of Ponce, P. R., from July 1 to and including September 15, 1900:

Crew inspected	number	942
Vessels inspected	do	41
Vessels in quarantine	do	1
Vessels disinfected	do	0
Passengers in transit inspected	do	197
Passengers incoming inspected	do	194
Baggage disinfected	pieces	1
Bills of health issued	number	40
Vaccination certificates stamped	do	7

The number of vessels arriving has materially decreased, many of the Canadian sailing vessels have stopped, and the trans-Atlantic Italian steamers have not touched at this port during the past two months. These latter come from suspicious ports and were always a source of danger to this port.

There has been no change in the method of conducting the work. No special blank forms are now in use at this station, the certificate of discharge from national quarantine (Form No. 1932a) is not used, as the quarantine officer boards with the customs inspector, who thus personally knows what disposition is made of the vessel.

A number of lead seals and paper tags for disinfected baggage has been shipped to this station and are expected in a few days.

In the disinfecting room proper thirty compartments have been constructed of dressed pine slats, thus greatly increasing the working capacity of the room but not obstructing the free circulation of the formaldehyde gas. A large work bench and lockers have been built in the outside room.

A small shipment of roll sulphur has been received and, as pots can be purchased here, this method of disinfection can be used on small vessels should the occasion arise.

The weekly sanitary reports have been made as usual. Especially noticeable is the very high death rate from intestinal diseases.

Respectfully,

W. W. King,
Assistant Surgeon Marine-Hospital Service.

Surgeon-General Marine-Hospital Service.

Mexico.

The acting assistant surgeon of the Marine-Hospital Service has been continued in service at the port of Vera Cruz during the current fiscal year for the purpose of inspecting outward-bound vessels for the United States with a view to preventing the introduction of epidemic disease into the United States.

Report of Transactions at the Port of Vera Cruz, Mexico, during the Fiscal Year ended June 30, 1900, and Supplemental Report to and including September 15, 1900.

Vera Cruz, Mexico, *July 30, 1900.*

Sir: In compliance with your letter of July 7, I have the honor to transmit the following report of the transactions of this office for the year ending June 30, 1900:

Inclosure No. 1 is a list of the vessels, passengers, and crews that have sailed from this port for Cuban and United States ports during the fiscal year. These figures are taken from the consular records.

The Federal authorities have at this port a complete disinfecting apparatus for the disinfection of baggage, and during the prevalence of an epidemic of yellow fever all outgoing baggage is inspected and labeled, all baggage from infected territory being disinfected.

All passengers from this port to United States and Cuban ports are required to secure a health certificate before sailing.

These certificates divide the passengers into three classes, the immunes, the nonimmunes from noninfected districts, and the nonimmunes from infected districts, that are required to be five days aboard the vessel before reaching Habana.

Two thousand one hundred and eighteen of these certificates have been issued during the the year.

I was absent from the post from December 13, 1899, until April 14, 1900, on an inspection tour of Central and South America.

I have made weekly reports to the Department upon the sanitary condition of the city and harbor, and have tried to keep informed upon the fever situation in the surrounding country.

This station is equipped with one autoclave, but so far there has been no occasion to use it.

Transportation to the vessels moored in the harbor is furnished by the small boats belonging to the steamship companies. When the house boat can not be secured I generally hire one at my own expense.

Respectfully, yours,

Samuel H. Hodgson,
Acting Assistant Surgeon, U. S. M. H. S.

Surgeon-General,
Marine-Hospital Service.

[Inclosure.]

Date.	Bills of health.	Viséed bills of health.	Number of crew.	Number of passengers.	Number of vessels for Habana.	Number of vessels for United States Gulf ports.
1899.						
July	13	18	1,162	523	12	7
August	19	17	1,407	828	10	17
September	18	12	1,250	447	18	9
October	20	12	1,462	441	17	16
November	14	11	1,161	456	9	10
December	12	12	1,672	561	12	10
1900.						
January	9	13	909	505	8	13
February	10	11	994	512	9	9
March	12	14	1,236	728	13	14
April	21	9	1,345	834	11	14
May	9	8	1,096	638	8	9
June	18	14	1,505	835	11	14
Total	175	151	15,199	7,308	138	142

MARINE-HOSPITAL SERVICE,
OFFICE OF THE MEDICAL OFFICER IN COMMAND,
Vera Cruz, Mexico, September 23, 1900.

SIR: According to your instructions of July 7, I have the honor to forward this, a supplemental report of the transactions of this office from July 1 to September 15, 1900.

Bills of health have been issued to 60 vessels, carrying 2,519 in their crews, 1,204 passengers, and 244 officers, making a total of 3,967 all told.

Of these passengers 823 were issued health certificates. During that period there were 205 cases and 94 deaths reported from yellow fever, 60 cases and 53 deaths reported from smallpox, and 454 deaths from all causes.

The death reports from smallpox and yellow fever are nearly correct, but the number of cases reported will not do for statistical purposes, as many cases that recover are treated by domestic remedies and are not reported to the authorities. This is especially true of the smallpox cases, as the population has a dread of the pesthouse. Twenty-five per cent, I think, is a conservative estimate of the mortality from yellow fever, and taking into consideration the fact that a large majority of those who die of the disease are only sent to the hospital to save funeral expenses, and also, considering the virulence of the disease, I think that the mortality is as low as could be expected.

There have been no steps taken to better the sanitary condition of the town, but the firm of S. Pearson & Son has been given the contract to put in a thorough system of sewers and waterworks.

This work will be commenced in December, and is expected to be completed by April.

I do not think that the opening up of the streets will be detrimental to the public health, except for the fact that many nonimmunes will be imported to do the work, and they will swell the death list.

From a yellow-fever standpoint I do not see that the sewerage system will materially help the town. The offal and house water will be carried off by the sewer, but the rain water will have to take care of itself as before. The houses are so constructed that it is impossible to prevent the dampness and mold. Even in the upper stories one's shoes and clothes turn green in a few days.

The Government has plans for the erection, in the near future, of a modern up-to-date disinfection and inspection plant. This plant will be situated at the water's edge, and all outgoing and incoming passengers will have to pass through it. There will be baths for males and females, steam and formaline machines for disinfecting baggage, and a room with tracks for the disinfection of several loaded cars at once.

The plans of the buildings will be forwarded as soon as a copy can be made.

Within the past few weeks a new steamship line has been established to run from Hamburg, London, Habana, Vera Cruz, Coatzacoalcos, and New Orleans, and thence back to the Continent.

Respectfully, yours,

S. H. HODGSON,
Acting Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

Central America.

DETAIL OF ACTING ASSISTANT SURGEONS TO THE FRUIT PORTS OF CENTRAL AND SOUTH AMERICA.

The acting assistant surgeons on duty at these ports last season were recalled November 1, and it became necessary to reestablish the inspection service at the beginning of the present quarantine season. It is contemplated to recall these officers at the close of the season, November 1, 1900. List of same follows:

Acting Asst. Surg. Spencer Franklin, La Ceiba, Honduras.
Acting Asst. Surg. N. K. Vance, Belize, British Honduras.
Acting Asst. Surg. H. B. Mohr, Bocas del Toro, Colombia.
Acting Asst. Surg. J. G. Thomas, Port Limon, Costa Rica.
Acting Asst. Surg. Samuel H. Backus, Livingston, Guatemala.
Acting Asst. Surg. D. W. Goodman, Bluefields, Nicaragua.
Acting Asst. Surg. Marcus Haase, Puerto Cortez, Honduras.

Following is a copy of the instructions sent to each of these officers:

Referring to Bureau letter of this date, transmitting your appointment as acting assistant surgeon at the port of ——— ———, I have to inclose herewith copy of the United States quarantine laws and regulations with amendments to date; also a copy of the special rules which have been prepared for the government of vessels while at the fruit ports of Central America. These regulations are subject to amendment at any time, and copies of such amendments will be mailed to you. As soon as possible an order will be issued attaching you to the consulate at ——— ———, in accordance with the law of February 15, 1893.

You will call upon the consular officer immediately upon your arrival and inform him of your orders.

Directions for operating the formaldehyde generator are also submitted herewith for your information and guidance.

There are inclosed drafts of two blank forms, one of which is an individual certificate to be issued to each passenger about to embark on a fruit vessel bound to a United States port; the other is a certificate issued to the master of the vessel and is an adjunct to the bill of health, which certificate he may deliver to the quarantine officer at the port of arrival. You are requested to transmit to the Bureau at the close of each week a report of the transactions at your station, giving the number of vessels and passengers inspected, the number of pieces of baggage disinfected, the sanitary condition of the port and surrounding territory, and anything which may be of interest regarding the work conducted by you.

This report should inclose copies of all certificates issued by you during the period covered by the report. You should keep complete records of all transactions in order that a report of same may be submitted at the close of the season. The consular officer at your port will be requested to transmit to you the public property belonging to the Marine-Hospital Service which is now in his possession. List of same is inclosed. You should immediately ascertain the amount of disinfecting materials on hand; also the amount of stationery, and should make timely requisition for replenishing same in order that you may be fully equipped to carry out the duties assigned you. You will acknowledge receipt of this letter immediately, and report to the Bureau the date of your departure for Central America, and also the date of your arrival at destination.

Respectfully,

Walter Wyman,
Surgeon-General, U. S. M. H. S.

RULES FOR THE GOVERNMENT OF VESSELS WHILE AT FRUIT PORTS.

Washington, D. C., *March 17, 1900.*

1. None of the crew shall be allowed to go on land except the captain.

2. No one from the shore shall visit the boat, except the quarantine officers, customs officers, and agent of the company which charters the ship.

3. All laborers who may be taken on the ship for loading purposes must have all their baggage disinfected before boarding the vessel, and must have no intercourse with the shore subsequent to their entry upon the vessel until their final discharge therefrom.

4. No intercourse is to be allowed with persons on shore, except as provided in the preceding paragraphs.

5. No vessel in the harbor shall lie at any wharf, but must be anchored in the river or harbor in midstream, and lighters, having been loaded by natives ashore, may be unloaded onto the ship by the laborers who have been disinfected.

6. The ships, if going up a river or harbor for fruit, shall not be allowed to bring any passengers down the river on their return.

7. All passengers must embark from the regular ports and must have been under the observation of the sanitary inspector of the United States for at least ten days prior to the departure of the ship, and be provided with his certificate to that effect. Immediately preceding their embarkation their baggage must be disinfected in accordance with the quarantine regulations of November 13, 1899, the most convenient methods being six hours' exposure to formaldehyde gas or twenty-four hours' exposure to sulphur dioxide gas in a closed chamber, the clothing being hung up on lines for the better penetration of the gas. Under no circumstances shall any passengers be allowed to carry bedding or household effects. Where passengers come from elevated and noninfectible points in the interior to low coast towns for embarkation they should not be required to pass the ten days' period of observation in the latter places because of the danger of developing malarial or other tropical fevers. They should be required to bring a certificate from the United States consul or a reliable physician stating that they have been under observation at such elevated and noninfectible interior point for ten days immediately preceding their arrival at coast towns. Their baggage should then be disinfected and they should be allowed to proceed without detention. Passengers taking ships bound direct to points north of the southern boundary of Maryland need not be detained.

8. Special attention should be paid to the sanitary condition and history of passengers arriving directly or indirectly from the Pacific coast towns of Central America.

9. All outgoing vessels must be provided with a bill of health in accordance with the law, and in addition thereto certificates in duplicate, signed by the medical officer attached to the consulate, and giving the name of the ship, her master, the number of crew, and a list of passengers, their sanitary condition and their ultimate destination in the United States, and stating the health conditions of the port and surrounding country, of the ship and her crew, with any other pertinent information.

DIRECTIONS FOR OPERATING THE FORMALDEHYDE GENERATOR.

Place in the autoclave the quantity of formalin mixture required for the given space, and start the lamp. See that all the valves are closed. When the pressure registers from 60 to 80 pounds, the valve regulating the flow of gas through the tube may be opened freely, but gradually, allowing the pressure to fall rapidly to 5 pounds or less. The valve is then closed, and the process repeated until all the formaldehyde is expelled.

The liquid residue is allowed to flow out through the faucet at the bottom of the boiler, and the interior rinsed with water. Unless this precaution is taken, useless material will be reboiled, and the foul mixture may be driven out by pressure to the ruination of fabrics or other valuable articles. The pungent odor can be overcome after a preliminary airing of the apartment by sprinkling water of ammonia about with a whisk broom.

You are advised to be careful in using the rubber tubing for conducting the formaldehyde from the autoclave, because of the liability of the tube to be blown off at one of its ends. The copper tube will be safer wherever possible to use it.

Formaldehyde mixture ready for use.

Formalin	1,000 c. c.
Chloride of calcium	200 grams.
Glycerin	100 grams.

Mix.

MARINE-HOSPITAL SERVICE.

PORT OF ——— ———,
Date ———, *19—.*

This is to certify that the bearer, ——— ———, leaves this port to-day as a passenger on board the — — ———, bound to ——— ———.

The said ——— ——— has complied with all the rules prescribed by the Marine-Hospital Service for the government of passengers leaving the fruit ports of Central America for the United States, and his baggage has been disinfected under my supervision. His ultimate destination in the United States, as stated by him, is ———.

——— ———,
Acting Assistant Surgeon, U. S. M. H. S.

MARINE-HOSPITAL SERVICE.

PORT OF ——— ———,
Date ———, *19—*.

This is to certify that I have examined the ——— ———, which arrived ——— from ——— ———, and which sails to-day for the port of ——— ———. Number of crew including officers, ———; sanitary condition, ———. Number of passengers, ———; sanitary condition, ———. Cargo, ———; sanitary condition, ———. Sanitary condition of this port and surrounding territory, ——— ———.

I certify that the vessel above named has complied with all the rules prescribed by the Marine-Hospital Service for the government of vessels while in the fruit ports of Central America, and is now in good sanitary condition.

——— ———,
Acting Assistant Surgeon, U. S. M. H. S.

The following additional instructions were sent the acting assistant surgeon on duty at Port Limon, Costa Rica:

WASHINGTON, *July 19, 1900.*

THOMAS,
Port Limon, Costa Rica:

Prohibit passenger traffic fruit vessels to southern ports till further orders if infection exists.

WYMAN.

WASHINGTON, *August 20, 1900.*

THOMAS (care U. S. consulate, Port Limon, Costa Rica).
MOHR (care U. S. consulate, Bocas del Toro, Colombia).

Regulations require disinfection all baggage and dunnage from shore on vessels leaving for either northern or southern ports.

WYMAN.

WASHINGTON, *September 14, 1900.*

THOMAS,
American Consulate, Port Limon, Costa Rica:

Hereafter do not enforce fruit-port regulations on vessels for ports north of Washington. Repeat this to Carson at Bocas.

WYMAN.

LA CEIBA.

REPORT OF TRANSACTIONS AT THE PORT OF LA CEIBA, HONDURAS, DURING THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT FOR THE PERIOD FROM JULY 1 TO SEPTEMBER 15, 1900, INCLUSIVE.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
La Ceiba, Spanish Honduras, August 6, 1900.

SIR: I have the honor to make the following report of transactions at this station from April 22, 1900, on which date work was begun, to and including June 30, 1900.

The equipment for disinfecting consists of one autoclave, which is transferred as required to the three houses owned by the three fruit companies, where all fumigation is done.

This port is an open roadstead, the boarding of vessels being accomplished with ships' boat through the surf, bad weather at times making it impossible to board vessels, as well as forcing them to seek shelter in the harbor of Utilla, and when, if loaded, they would have to file a protest before the United States consul at Utilla and proceed to the United States without papers from this port.

There are two employees at this station, consisting of an acting assistant surgeon in charge, who inspects all vessels, crews of same, as well as passengers, and who supervises the disinfecting of baggage, issuing certificates to vessels and passengers and signing the bills of health issued by the consular agent, making weekly reports to the Bureau of all transactions, inclosing copies of all papers issued.

An attendant is also employed, who handles baggage and operates the disinfecting plant, and gives any other assistance required. Passengers are referred to the Marine-

Hospital Service surgeon on applying for passage, and if from unknown localities are required to remain ten days under supervision, unless coming from the Bay Islands or interior elevated localities, when a certificate from a reliable physician or the American consul or consular agent stating that the said passengers have not been in an infected region for thirty days is accepted.

All baggage bound for the United States or going on board vessels is opened and exposed for six hours in a closed room to formaldehyde gas. It is repacked in same room and transferred directly to the steamers.

From April 22, 1900, to and including June 30, 1900, 32 vessels have been inspected, the crews of same numbering 456; 32 passengers have been inspected and left for the United States, and 53 pieces of baggage disinfected. The total number of persons inspected was 488.

It has not been necessary to disinfect any vessels.

Respectfully,

SPENCER FRANKLIN,
Acting Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
La Ceiba, Honduras, September 21, 1900.

SIR: I have the honor to submit the following supplemental report covering the period from July 1, 1900, to and including September 15, 1900, from which you will see that 39 vessels and 612 persons were inspected, and that 56 pieces of baggage were disinfected.

The prohibition of passengers from Central American ports by the States of Louisiana and Alabama greatly lessened the work after August 4. Five persons were vaccinated and left for Cuba via the island of Ruatan. It has not been necessary to disinfect any vessels.

During the season when the work at this station permitted I have visited all the points along the coast included in this territory, and the Bay Islands, including Bonacca. I have to thank the United States consul, Mr. Johnston, of Utilla, for keeping me constantly informed as to the health and sanitary conditions of the Bay Islands, as well as Mr. Wildt, the consular agent at Ruatan.

From the last of September to and after the close of the quarantine season especial attention must be directed to the Bay Islands, as vessels are constantly going there for cocoanuts, and a number of sailing vessels clearing directly for ports in the United States without coming to La Ceiba.

Respectfully,

SPENCER FRANKLIN,
Acting Assistant Surgeon, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure.]

Report of station work, La Ceiba, Honduras, July 1 to September 15, 1900.

Week ended—	Vessels inspected.	Passengers inspected.	Baggage disinfected.	Crews inspected.
July 7	4	9	13	58
14	4	4	9	59
21	1			15
28	3	9	24	47
August 4	5	6	10	74
11	3			46
18	2			29
25	4			63
September 1	4			58
8	5			78
15	4			57
Total	39	28	56	584

BELIZE.

Report of Transactions at the Port of Belize, British Honduras, during the Fiscal Year ended June 30, 1900; also Supplemental Report for the Period from July 1 to September 15, 1900, inclusive.

Office of Medical Officer in Command,
Marine-Hospital Service,
Belize, British Honduras, August 1, 1900.

Sir: In compliance with your request, I have the honor to submit herewith a report, from the beginning of the season up to and including June 30. I arrived in the city of Belize on the 9th of April and at once reported to the consul and assumed charge of the work assigned me. Dr. C. W. Knight, in his excellent reports to you from this place last season, gave you accurately and fully the topography of the town and its sanitary condition. There have been no changes made—no improvements introduced; therefore the same descriptions apply to-day, and it is not necessary to reiterate them.

In this colony (British Honduras) there are about 35,000 people, of whom about 13,000 are in the Belize district (including the town of Belize, with a population of about 7,000). It would probably be well to state here that the weekly mortuary reports issued by the registrar-general apply to the town of Belize only; not to the district. The colony is divided into six districts, in each of which a government medical officer is stationed. It is from these officers that the government gets reliable information of the health conditions in the outlying districts. In most of the districts these medical officers are the only resident physicians, and in a sparsely settled territory, covering a good many miles, it is impossible for them to render absolutely correct reports, but they are reasonably approximate. Each of these officers has under his charge an institution which is called a hospital—in most cases a most primitive affair, but still it is a place to which the poor may come for treatment; they are charity institutions, or at any rate practically so. However, the hospital in the town of Belize is quite a creditable institution. The buildings are not just what they should be, but about 30 patients can be most comfortably cared for. The medical service is excellent. The four nurses—all colored women, of course—wear a very neat uniform; lectures of a most practical kind are delivered before them by the resident surgeon, so that in time they become, in a measure, professional nurses. The death rate in the colony is very large, particularly the infantile mortality (under 5 years of age). This infantile mortality is most marked in the two upper districts, in which the Indians predominate—in fact, that race is gradually diminishing; each year the deaths exceed the births by a small margin. But in the colony as a whole there was a slight increase in population during the past year—the births exceeded the deaths by a few hundred.

The property in the hands of the consul was turned over to me. The autoclave was not in first-class condition, but with a little work done on it now and then by a local machinist I have continued to use it with moderate satisfaction. The consulate is a half mile distant, quite an inconvenient distance, so I accepted the proffer of an office made me by the United Fruit Company in their building. The same office is occupied by the representative of the Louisiana State board of health, who, I am glad to say, is in perfect accord with me. We are given the use of the fumigating room of the fruit company, one which has been used by them for several years. The room is only a few steps from my office. The fumigation for the regular line of New Orleans steamers—the mail steamers—is done on Thursday afternoon, and that for the Mobile steamers (every alternate week) is done at the same hour in the same room. All baggage is kept in the room for the night, and on Friday morning is taken from the room right out to the vessel. (The fumigating room is just at the wharf.) On every piece fumigated is placed the label "Disinfected and passed," with my name, etc., stamped upon it. Such things as are not disinfected are labeled "Inspected and passed." Both fruit lines take on laborers here to handle the fruit on the lower coast and dismiss them on the return. The baggage of these men is fumigated before being taken aboard, and they are required to come to the fumigating room and change suits—put on fumigated ones—immediately before going out to the vessels. The agents of the companies have been notified to receive no freight for the States until I have been notified as to its character. I issue to the passengers for the States certificates in accordance with the form sent me by the Bureau. I also issue the prescribed form of certificate to the master of the vessel, in addition to indorsing the consular bill of health; but vessels for ports north of the southern boundary of Maryland do not have any papers whatever from me, we being instructed to that effect. In order to protect the steamers making regular trips between this place and New Orleans or Mobile, we make the same requirements as to passengers and freight going south, but instead of a certificate I issue to each of these passengers an identification card. The vessels for New Orleans leave at 10 o'clock a. m., and those for Mobile at 9 o'clock. I leave my office about 8 o'clock to go aboard for inspection. The harbor is a shallow one and the vessels are compelled to anchor about 1½ miles out. Both fruit companies have very kindly put their sailboats at my disposal for these trips. I preferably use that of the United Fruit Company, because it is a larger and heavier boat, and, in my opinion, much better manned. Frequently the sea runs high and is uncomfortably rough, so I select the boat in which I feel most secure. This kindness is done me by the companies free of any cost to me.

There have been 21 clearances issued to vessels for Southern ports—19 steamers, 1 bark, 1 schooner. Thirteen of these were for New Orleans, 7 for Mobile, and 1 for Apalachicola. We have sent 68 passengers to the States (54 to New Orleans and 14 to Mobile), with 169 pieces of baggage fumigated (148 pieces to New Orleans and 21 to Mobile). We have also sent South by these same steamers 50 passengers, with 80 pieces of baggage fumigated.

In addition to the above, the *Themis*, of the Tweedie Line (New York), cleared from this port on 28th June for New York via Jamaican ports. She had one passenger from this place for New York. His baggage not fumigated nor any papers issued to him.

Respectfully,

Norwood K. Vance,
Acting Assistant Surgeon, M. H. S.

Surgeon-General Marine Hospital Service.

REPORT OF OPERATIONS AT THE BELIZE STATION FROM JULY 1 TO SEPTEMBER 15 (BOTH DATES INCLUSIVE), IN CONTINUANCE OF REPORT FORMERLY SUBMITTED.

Office of Medical Officer in Command,
Marine-Hospital Service,
Belize, British Honduras, September 16, 1900.

The work of the station has been very much diminished of late by reason of the passenger restrictions put on in Mobile and New Orleans. No passenger has gone from this port to Mobile since July 20, and none to New Orleans since August 3; nor are any passengers taken by these steamers from point to point on this lower coast. From the 1st of July up to the time that these restrictions were enforced we sent south (on steamers plying regularly between this place and Mobile and New Orleans) 41 passengers, with 83 pieces of baggage disinfected; and during the same time we sent north to Mobile and New Orleans 26 passengers with 55 pieces of baggage. Of these, 4 passengers with 20 pieces of baggage were for Mobile—all of the others to New Orleans. In the meantime passengers for the States have been compelled to go either to Norfolk, Va., or to New York City. The Tweedie Line has one steamer a month from this place to New York, and every month or six weeks there is an English steamer returning to England with mahogany and logwood, which goes by way of Norfolk to coal. These steamers have, for the most part, limited and imperfect accommodations, but still can and will carry a few passengers. On the 16th of August the *Spheroid* (English steamship) left this port for Norfolk, carrying 2 passengers with 5 pieces of baggage disinfected; on the 4th of September the *Savan* (English steamship) cleared for Norfolk with 7 passengers and 16 pieces of baggage disinfected. I did not issue any papers to passengers by the New York steamers. We have, then, issued papers to 35 passengers for Southern points in the States, with 76 pieces of baggage disinfected, since the 1st of July.

The health conditions have been entirely satisfactory. There has been little or no infection. During July and August there were 5 cases of diphtheria in the town, with 3 deaths. No cases were reported from the country. The mild glandular trouble which prevailed so generally in the city and colony in the early part of the season seems to have entirely disappeared.

Respectfully,

Norwood K. Vance,
Acting Assistant Surgeon, M. H. S.

BOCAS DEL TORO.

REPORT OF TRANSACTIONS AT THE PORT OF BOCAS DEL TORO, COLOMBIA, DURING THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT FOR THE PERIOD FROM JULY 1 to SEPTEMBER 15, 1900, INCLUSIVE.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Bocas del Toro, Colombia, August 30, 1900.

SIR: I have the honor to submit report of transactions at this port from April 5 to June 30, 1900:

The number of vessels inspected during this period is as follows:

Cleared for Mobile	38
Cleared for New Orleans	4
Cleared for Baltimore	9
Cleared for Philadelphia	3
Total	54

Number of passengers inspected:	
Bound to Mobile	48
Bound to Baltimore	24
Total	72
Number of pieces of baggage disinfected	129

Work was commenced at this port on April 5.

The only equipment at my disposal is an autoclave for the generation of formaldehyde gas from the glycoformol mixture, which is used for the disinfection of laborers' clothing and passengers' baggage. A small building, furnished by the United Fruit Company, is used for the purpose. A room of about 1,000 cubic feet capacity, well papered and made air-tight, serves for the reception of the material to be disinfected, the clothing being spread out and hung on lines. The autoclave stands in an adjoining room, from which the gas is introduced under 60 pounds pressure. Six hours is the minimum time of exposure.

The clothing of the laborers and others permitted aboard the ship is placed in the disinfecting chamber on the evening before the vessel arrives.

There are no employees at this station, all the work being done by the medical officer. In order to board vessels, the medical officer must request the agent of the vessel to send him a boat, if a boat be handy. At the time of the last inspection and clearing of the vessel the agent usually sends a naphtha launch for the medical officer.

Vessels and their crews are inspected on their arrival and again just previous to departure, the crew being mustered on deck and each individual examined.

All persons desiring to take passage to the United States are detained in this port ten days, reporting daily to the medical officer during that time.

All outgoing vessels and passengers are provided with certificates according to the forms herewith inclosed.

Respectfully, yours,
H. B. MOHR,
Acting Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

MARINE-HOSPITAL SERVICE,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Bocas del Toro, Colombia, S. A., September 17, 1900.

SIR: I have the honor to transmit report of transactions at this station from July 1, 1900, to and including September 15, 1900.

In this connection I have to state that I relieved, on account of injury, Acting Asst. Surg. H. B. Mohr, on August 21, 1900, in compliance with Bureau letter (H. P. H.) dated Washington, D. C., August 13, 1900, but which was not received until August 20, 1900, the date of my return to New Orleans after completing inspection of all the Central American fruit ports.

The number of vessels inspected and clearing for ports in the United States during this period is as follows:

Cleared for—

Mobile, Ala	8
New Orleans, La	6
Baltimore, Md	9
Philadelphia, Pa	8
New York, N. Y	3
Total	34

Number of passengers inspected:

Bound for Baltimore, Md	1
Bound for Mobile, Ala	19
Total	20
Number of pieces of baggage disinfected	31

The passenger service on vessels bound for New Orleans and Mobile was discontinued on receipt of the following cablegrams:

WASHINGTON, D. C., *July 28, 1900.*

MOHR, *American Consulate, Bocas del Toro, Colombia:*

Mobile refuses to allow passengers hereafter on fruit vessels from all fruit ports of Central America.

WYMAN.

WASHINGTON, *August 6, 1900.*

Acting Asst. Surg. HERMAN B. MOHR,
Care of American Consul, Bocas del Toro, Colombia:

Fruit vessels arriving New Orleans, carrying passengers, or having carried passengers from one port to another, will be disinfected and detained five days by Louisiana quarantine.

WYMAN.

From July 15, 1900, to September 3, 1900, there have been five cases of yellow fever, three of whom died, and as soon as practicable the premises wherein the cases occurred were disinfected with formaldehyd vapor and all bedding destroyed by burning.

Respectfully,

WM. H. CARSON,
Acting Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

PORT LIMON.

REPORT OF TRANSACTIONS AT PORT LIMON, COSTA RICA, DURING THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT FOR THE PERIOD FROM JULY 1 TO SEPTEMBER 15, 1900, INCLUSIVE.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Port Limon, Costa Rica, July 18, 1900.

SIR: As per your instructions (C. H. W.) of July 7, 1900, I forward to you the work done by me to June 30, 1900, inclusive.

As per inclosure, you will see that I have inspected and issued certificates to 47 vessels, issued certificates to 31 passengers, and disinfected 44 pieces of baggage.

I have also inspected and issued certificates to 55 passengers, and disinfected 93 pieces of baggage on steamship *Sunrise* (belonging to United Fruit Company), plying between Bluefields, Bocas del Toro, Colon, and Port Limon.

All fruit vessels come alongside of wharf, and for this reason I have detailed a special officer to prevent unauthorized persons from going aboard ships; also to keep the crews of vessels aboard. This man stays on the wharf day and night while vessels are alongside. I have a man employed to assist me in disinfecting baggage. All clothing is taken out of trunks and valises and hung upon lines in disinfecting room for the better penetration of the formaldehyde. It is then subjected to a six hours' exposure. Inclosed find blank forms of passenger and steamship certificates issued by me.

Thus far we have had only one case of yellow fever, which died on April 20, and to which effect I cabled you same date.

On June 20 steamship *Olympia*, Captain Seiders, from New Orleans, La., arrived at this port with a child aboard, convalescing from measles. I at once disinfected with formaldehyde the cabin and child's clothes, and wrote you to that effect June 21.

There have been 33 deaths from April 9 to June 30, 1900, inclusive, as follows: On April 13, a child 2 years of age, from malarial fever; 14th, a child 3 years of age, from dysentery; 15th, 1 stillborn; an adult 30 years of age, from phthisis pulmonalis; 20th, an adult 76 years of age, from yellow fever; 28th, a child 12 days old, from enteritis, a child 2 years, from malarial dysentery; May 3, an adult 35 years of age, from mitral insufficiency; 4th, a child 7 months old, from convulsions; 7th, a child 1 year of age, from hereditary syphilis; 8th, a child 2 years of age, from convulsions; 9th, an adult 30 years of age, from ulcer of intestines; 10th, an adult 30 years of age, from remittent fever; 11th, an adult 76 years of age, from senility; 13th, an adult 32 years of age, from delirium tremens; 15th, an adult 32 years of age, from pernicious fever; 17th, an adult 32 years of age, from remittent fever; 18th, an adult 22 years of age, from acute nephritis; 19th, an adult 30 years of age, from abortion; 24th, a child 9 years of age, from cerebral congestion; June 7, an adult 23 years of age, from anæmia; 8th, an adult 22 years of age, from bilious remittent fever; 9th, a child 2 months old, from enteritis; 12th, a child 15 years of age, from heart disease; 14th, a child 4 years of age, from remittent fever; 18th, a child 3 months old, from inanition, 1 stillborn; 19th, 1 stillborn; 23d, a child 1 year and 5 months of age, from acute enteritis; an adult 55 years of age, from carcinoma of uterus, a child 6 months old, from dysentery; 26th, a child 1 month and 12 days old, from enteritis, and on 30th, a child 9 months old, from dysentery.

Port Limon has three hospitals, as follows: The Costa Rica Railroad, the United Fruit Company, and the Charity or Government. A great many of the sick from the farms of the interior and along the railroad come to this port for treatment, which makes the death rate of Limon higher than it should be.

Respectfully,

J. GREY THOMAS,
Acting Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Port Limon, Costa Rica, September 16, 1900.

SIR: As per your instructions (G) of July 7, 1900, I forward to you the work done by me at this port from July 1 to September 15, inclusive. As per inclosure, you will see that I have inspected and issued certificates to 38 vessels, issued certificates to 43 passengers, and disinfected 101 pieces of baggage. I have also issued certificates to 156 passengers and disinfected 224 pieces of baggage leaving Limon on steamship *Sunrise*, plying between Bocas, Colon, Bluefields, and this port.

There have been 62 deaths during the period, causes as follows: July 1, an adult 22 years of age, from erysipelas; 2d, a child 1 year of age, from convulsions; 4th, a child 1 year and 3 months of age, from pernicious fever; 8th, a child 10 months of age, from dentition; 9th, an adult 22 years of age, from congestion of liver; an adult 23 years of age, from pernicious fever; 10th, an adult 40 years of age, from hæmoglobinuric fever; an adult 30 years of age, from cardiac failure; 11th, an adult 38 years of age, from phthisis pulmonalis; a child 7 months of age, from inanition; a child 9 months, from dentition; an adult 25 years of age, from remittent fever; 13th, an adult 30 years of age, from pneumonia; a child 1 day of age, from premature birth; 15th, a child 8½ months, from cholera infantum; an adult 72 years of age, from dysentery; a child 3 months, from inanition; 19th, a child 4 months, from hæmoglobinuric fever; 22d, an adult 36 years of age, from syphilis; 23d, a child 1 day of age, from inanition; 24th, an adult 46 years of age, from heart disease; 26th, an adult 24 years of age, from phthisis pulmonalis; an adult 27 years of age, from phthisis pulmonalis; a child 1 year and 7 months, from meningitis; 28th, an adult 50 years of age, from pneumonia; an adult 54 years of age, from typhoid fever; an adult 48 years of age, from Bright's disease; 29th, a child 1 year of age, from dysentery; an adult 34 years of age, from phthisis pulmonalis; an adult 31 years of age, from intermittent fever; 31st, a child 1 day old, from inanition; August 3, a child 1 year and 4 days of age, from dysentery; an adult 38 years of age, from dysentery; 4th, an adult 48 years of age, from heart disease; 5th, an adult 54 years of age, from syphilis; 6th, a child 2 months of age, from inanition; an adult 23 years of age, from Bright's disease; a child 1 year, from convulsions; 7th, a child 1 year and 2 months, from pneumonia; a child 1 year and 3 months, from intermittent fever; 9th, a child

8 years of age, from intermittent fever; 10th, a child 4 months, from intermittent fever; 11th, an adult 40 years of age, from dysentery; 12th, a child 1 year and 5 months of age, from bronchitis; an adult 55 years of age, from cirrhosis of the liver; 14th, an adult 60 years of age, from diarrhea; 19th, an adult 30 years of age, from chronic malaria; 21st, an adult 60 years of age, from rheumatism; 22d, an adult 26 years of age, from asphyxia; an adult 26 years of age from pneumonia; 23d, an adult 35 years of age, from yellow fever. (This is the case that was removed from steamship *Canada*, from Colon, to quarantine island; there died; was buried; previously reported.) 27th, an adult, 36 years of age, from rheumatism; an adult 48 years of age, from dysentery; 29th, a child 18 months, from enteritis; 30th, an adult 39 years of age, from dysentery; 31st, an adult 40 years of age, from tuberculosis; September 1, an adult 35 years of age, from heart disease; 4th, 1 stillborn; 6th, an adult 28 years of age, from hepatitis; 1 premature birth; 10th, an adult 31 years of age, from malarial fever, and 12th, an adult 25 years of age, from Bright's disease.

On August 8 a case of smallpox was discovered in Limon; where it came from I am unable to say. The patient was at once isolated and no other cases have developed. There have been two cases of yellow fever imported, one on the steamship *Holstein*, which arrived here August 16, and one on steamship *Canada*, which arrived here August 21. Neither of these cases reached Limon. The first case died on the ship and was buried at sea. The second one was removed to quarantine island, where he died and was buried.

The local government has imposed new quarantine restrictions, requiring all baggage from South American, or in fact any infected port, to be disinfected before it reaches Limon. Another new restriction is to allow none of the crews of vessels ashore. These two measures I consider of great importance.

Limon thus far has been very fortunate as regards yellow fever, only one case, which died April 20, 1900, and, as I have before said, I believe it to have been imported.

The new disinfecting room, constructed by the United Fruit Company under my supervision, is now in operation and works admirably.

Respectfully,
J. Grey Thomas,
Acting Assistant Surgeon, U. S. M. H. S.

Surgeon-General Marine-Hospital Service.

LIVINGSTON.

Report of Transactions at the Port of Livingston, Guatemala, during the Fiscal Year ended June 30, 1900; also Supplemental Report for the Period from July 1 to September 15, 1900, Inclusive.

Livingston, Guatemala, *July 18, 1900.*

Sir: I have the honor to hereby make the report for this station from April 10, the date on which quarantine regulations began, to and including June 30, as per your request.

Work was begun here April 12. The plant consists of an air-tight box 12 by 12 feet and 8 feet high. Within it is equipped with stout cords, upon which the clothing is hung. We have autoclave, formalin, and other necessary chemicals and sulphur. At first formaldehyde was used and the goods left in box from 5 o'clock in the evening until an hour before sailing time the next morning. Now during temporary disuse of autoclave sulphur is burned in the box from fifteen to eighteen hours. We board vessels by means of a small steamer, which is at our disposal in common with customs officers and port doctor.

I have no employees. The passengers must arrange to have their goods at the plant at appointed time. Passengers without certificates are forced to comply with ten-day clause, as this can be done here with impunity on account of the good health of the place. Gualan (and less directly Zacapa) we watch most closely (as regards certificates), being in direct communication with Santa Ana, Salvador, which is always infected. Fortunately there is a reliable man there, as the Department has already been informed.

Persons vaccinated, none.
Vessels inspected, 17.
Vessels disinfected, none.
Pieces of baggage inspected, none.
Pieces of baggage disinfected, 3 small, 4 large.
Persons inspected, 59. (This refers to passengers on vessels inspected.)

Respectfully,
Samuel Harris Backus,
Acting Assistant Surgeon, U. S. M. H. S.

Surgeon-General Marine-Hospital Service.

LIVINGSTON, GUATEMALA, *September 15, 1900.*

SIR: I have the honor to submit, according to instructions, my supplemental report of the transactions at my station from July 1 to September 15, 1900, inclusive: Vessels inspected, 14; vessels disinfected, none; pieces of baggage inspected, none; pieces of baggage disinfected, 6 large and 2 small; number of persons inspected (refer to passengers whose baggage I disinfected), none; persons inspected (in transit), 68.

The passenger quarantine at New Orleans and Mobile against Livingston, existing since August, necessarily curtailed the work of disinfection. The steamship inspection was also lessened by the New Orleans boats not stopping at Livingston since August 16. Therefore the quarantine season will be finished by three more visits of the steamship *Managua.*

For the week ended Tuesday, October 2, Livingston has maintained its usual status of good health. No deaths have been reported for the past week. With no New Orleans boats to inspect and no passenger traffic quarantine news is necessarily limited.

September 26 inspected steamship *Managua*, Olvik; crew, 16; passengers, none; cargo, green fruit; all in good sanitary condition; destination, Mobile.

For the week ended October 9, 1900: This port has enjoyed its average good health during this time. I have noticed during the entire season that anything akin to typhoid fever has been absent. Aside from rather general manifestation of malaria, only the usual acute and chronic troubles of any community have been found here. There was 1 death reported for the week—adult male; native of China; chronic phthisis.

Respectfully,

SAMUEL HARRIS BACKUS,
Acting Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

BLUEFIELDS.

REPORT OF TRANSACTIONS AT THE PORT OF BLUEFIELDS, NICARAGUA, DURING THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT FOR THE PERIOD FROM JULY 1 TO SEPTEMBER 30, 1900, INCLUSIVE.

REPORT OF TRANSACTIONS FROM APRIL 1 TO JUNE 30, 1900.

OFFICE OF MEDICAL OFFICER IN COMMAND, MARINE-HOSPITAL SERVICE,
Bluefields, Nicaragua, July 20, 1900.

SIR: I arrived at the station April 7, 1900, and immediately applied to the United States consular agent for supplies left in his care at the close of the last quarantine season, consisting of some stationery, a formaldehyde generator, and a carboy partially filled with glycoformol, which were promptly delivered to me. The apartment used last year in disinfecting baggage was found in a bad condition, so I directed the steamship companies to have one built according to plans furnished by me, as follows: A room 15 feet long, 12 feet wide, and 10 feet high from floor to ceiling, built of tongued and grooved planks, with doubled walls, floor, and ceiling, tarred paper between the two layers of planks. Across this room, 5 feet from the outer door, runs a partition of doubled planks. The only opening in the walls of the inner room is the door between the rooms, which fits very tight, having strips of felt around the door jamb. Wires are stretched at regular intervals as to height and width across this room, on which are hung the clothing of passengers undergoing disinfection. The outer small apartment, 12 by 5 feet, is for the formaldehyde generator and carboys of disinfecting solution. A small hole in the partition allows the entrance of the copper tube carrying the gas from the generator.

This house is built at the end of a wharf in full exposure to the tropical sun, the intense heat of which aids the gas in its microbicidal effect.

As most of the ships leave this port in the morning I require the baggage of all passengers to be brought to the disinfecting room the afternoon previous to the ship's departure; by doing this the clothing is exposed to the influence of formaldehyde for twelve or fifteen hours, the first of which, when the hot afternoon sun is fully on the house.

No clothing is taken from the room until the ship's expected departure is announced and then all goes on the ferryboat to the ship.

I have one employee whose duty is to keep the generator clean, inside and out, in order, and under my personal supervision attend to the details of the disenfecting.

Persons applying for passage to ports in the United States south of the southern boundary of Maryland must present themselves at my office for inspection, give a history of their recent whereabouts, and hold themselves under my supervision for ten days prior to departure for the United States. The satisfactory health conditions of Bluefields and the lack of reliable information as to the sanitary condition of localities from which most of the passengers come render this a safe precaution and not much of a hardship.

There are no means of disinfecting vessels other than by using the formaldehyde generator.

As all vessels leaving here for southern ports go direct, there is no danger of reinfection of baggage en route.

The method of boarding in order to inspect vessels and crews is a very onerous and tiresome one for the inspector, and if done thoroughly and conscientiously this can not be remedied.

A shallow lagoon 5 miles wide separates the town of Bluefields from the entrance to the harbor, where is located the custom-house, and where vessels have to anchor on entering or leaving the port. When entered, if a fruit vessel, she proceeds through a channel on the distal side of this lagoon to the mouth of the Escondido River and then up the river some 50 miles, anchoring in midstream to await barges filled with bananas to be brought to her side and there unloaded into the vessel by gangs of laborers taken on board from Bluefields. These laborers are under my supervision while in Bluefields and all their luggage is disinfected each trip just prior to their being taken on board the ship. When loaded the vessel comes down the river and again anchors near the mouth of the harbor. As soon as her coming down the river is known in town the passengers, their baggage, and the acting assistant surgeon, United States Marine-Hospital Service, start across the 5 miles of shallow water in a small ferryboat, often getting aground and being detained in the hot sun or beating rain for hours. The ship finally reached, a rigid inspection of crew and the ship is made; if all right, passengers are allowed aboard. Bills of health and certificates are given to the master and passengers and the ship leaves.

The quarantine rule that no one shall visit the ship except custom-house and quarantine officials and agent of the steamship company is rigidly enforced.

This season I have not vaccinated anyone, there being no reports of smallpox in or around Bluefields. Most of the laborers on the ships are men I vaccinated last year.

From April 1 to June 30, 1900, 32 ships have been inspected, none disinfected, 151 pieces of baggage inspected and disinfected, and 87 persons inspected.

The mortuary records of Bluefields show 5 deaths for April, 12 for May, and 12 for June, total for the trimester, 29. Eliminate 8 that I know were brought here in a moribund condition, and the remaining 21 gives a fair statement of the actual deaths to be charged to Bluefields, whose estimated population of 4,000 thus gives an annual rate per 1,000 of 21. The practicing physicians here, both English and Spanish speaking ones, are very courteous to me and often call me to see cases whose fatal termination might cause suspicion, too late to be properly investigated. So far I have found nothing at all suspicious of infectious or quarantinable diseases.

Respectfully submitted.

D. W. Goodman,
Acting Assistant Surgeon, U. S. M. H. S.

Surgeon-General Marine-Hospital Service.

Bluefields, Nicaragua, *September 30, 1900.*

Sir: I have the honor to report that for the trimester ended to-day 28 steamships, all engaged in the fruit trade, have been inspected and cleared from this port; they carried 28 passengers, having 31 pieces of disinfected baggage.

There have been 28 deaths in Bluefields, 5 of malarial fever, 3 of dysentery, 4 of tuberculosis, 2 of dropsy, and 1 each of the following: Dentition, rheumatic fever, convulsions, pyæmia, nephritis, drowned, unknown, general debility, intestinal invagination, heart disease, anæmia, senility, pharyngitis, and uterine hemorrhage.

The majority of the deaths from malarial fever and from dysentery (another manifestation of malaria) were in persons brought from the plantations several miles distant from Bluefields.

The rainy season, which commenced about May 15 and is still on, has been characterized by frequent but not as heavy rains as last year; the temperature has been moderate, seldom above 90° F., with cool nights and a breeze most of the days.

The health authorities of the port have shown a disposition to keep the place free from quarantinable diseases by adopting quarantine regulations and rigorous execution of the same. They very kindly accept and act upon suggestions from me, and so far we have worked in perfect harmony.

Respectfully,

D. W. GOODMAN,
Acting Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

PUERTO CORTEZ.

REPORT OF TRANSACTIONS AT PUERTO CORTEZ, HONDURAS, DURING THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT FOR THE PERIOD FROM JULY 1, 1900, TO SEPTEMBER 30, 1900, INCLUSIVE.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Puerto Cortez, Honduras, July 28, 1900.

SIR: I have the honor, in compliance with Bureau letter G, to submit report of the transactions at this station up to July 1, 1900.

The station was opened May 6 by Dr. Haase, who was in charge until May 24, during which time 13 vessels cleared for the United States, 14 transit and 34 through passengers were given certificates, and 79 pieces of baggage were disinfected.

I relieved Dr. Haase on May 24, 1900, from which date until the 1st of June 4 vessels cleared, 4 transit and 6 through passengers were given certificates, 102 crew inspected, and 22 pieces of baggage disinfected, making a total of 17 vessels cleared, 58 passengers given certificates, 102 crew inspected, and 101 pieces of baggage disinfected during May.

In the month of June 18 vessels cleared for the United States, 34 transit and 42 through passengers were given certificates, 399 crew inspected, and 111 pieces of baggage disinfected.

From May 6 up to July 1, 35 vessels cleared, 134 passengers were given certificates, 501 crew inspected, and 212 pieces of baggage disinfected. Of the 35 vessels leaving this port, 16 cleared for New Orleans, La., 13 for Mobile, Ala., 4 for New York, N. Y., 1 for Boston, Mass., and 1 for Habana, Cuba. The equipment of this station consists of 1 autoclave for disinfecting with formaldehyde gas. No apparatus or material available here for the disinfection of vessels.

Passengers going on the steamers are required to apply in person. When they come from the interior or higher altitude they have to bring a certificate from the American consul or a physician of known integrity as to their not having been exposed to any infectious or contagious disease for at least ten days before leaving for the port. When from the coast towns they are required to pass ten days in the port before embarking. All baggage is inspected and any bedding or household goods found is thrown out. The baggage, well loosened, is then put in an air-tight room and exposed to formalin vapor for at least six hours, a pressure of 75 to 80 pounds being required before the gas is turned into the room. Puerto Cortez is well protected from infection from the interior, which is very mountainous, as the only means of communication is by mule back and is very arduous. The trip from San Pedro, which is the end of the Honduras Railroad, to Tegucigalpa (the capital) requires from five to seven days, and from Tegucigalpa to Amapala, the Honduranian port on the Pacific, requires from three to four days, so that anyone to make the trip from the Pacific side would take about ten days' hard riding. Amapala is near the Salvadorian border, and, from reports, is infected with yellow fever, but from the difficulty of traveling to Puerto Cortez I apprehend no danger from this point.

Respectfully,

R. H. PETERS,
Acting Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Puerto Cortez, Honduras, October 4, 1900.

SIR: I have the honor to submit a supplemental report of the transactions at this station covering the period from July 1 up to October 1, 1900.

During the month of July 17 vessels cleared from this port for the United States, 363 crew inspected, 63 passengers given certificates (31 through and 32 transit), and 96 pieces of baggage fumigated. On the 28th of July Mobile and on the 6th of August New Orleans prohibited the carrying of passengers on the fruit steamers, since which dates no passengers have been carried by the fruit steamers. During August 17 vessels cleared, 372 crew inspected, 28 passengers were given certificates (19 through and 9 transit), and 32 pieces of baggage fumigated.

During September 16 vessels cleared, 328 crew inspected, and 10 passengers (5 going to New York and 5 going to Habana), making a total of 50 vessels cleared for the United States, 1,063 crew inspected, 101 passengers given certificates, and 128 pieces of baggage fumigated. Of the 50 vessels cleared 28 went to New Orleans, 16 to Mobile, 4 to New York, 1 to Boston, and 1 to Habana, Cuba.

The health of Puerto Cortez has been good, there not having been a suspicious case of any nature so far this season.

Respectfully,

R. H. Peters,
Acting Assistant Surgeon, M. H. S.

Surgeon-General Marine-Hospital Service.

Report of Inspection of Endemic Foci of Yellow Fever in Mexico and Central and South America.

Shipping bound to the United States from Mexico and Central and South American ports is in constant danger of infection from endemic foci of yellow fever more or less remote from ports of embarkation, but usually connected by rail or lines of vessels. It was desired to have complete sanitary reports upon these places, and Acting Assistant Surgeon Hodgson, on duty at Vera Cruz, Mexico, was directed to make a tour of inspection of said ports. His report will be found in Public Health Reports of June 15, 1900, page 1518.

Brazil.

RIO JANEIRO.

The acting assistant surgeon of the Marine-Hospital Service on duty at Rio Janeiro has kept the Bureau posted on the progress of epidemic diseases in that city and country, particularly plague.

In view of the prevalence of plague at Santos the officer at Rio Janeiro was directed to take particular pains in the inspection of coffee and other merchandise brought from Santos to Rio for shipment to the United States, and was further directed to note all such shipments on the bill of health and report same to the Bureau.

Report of Transactions at the Port of Rio Janeiro, Brazil, during the Fiscal Year ended June 30, 1900.

Rio de Janeiro.

Sir: The transactions of my station during the period July 1, 1899, up to June 30, 1900, have been as follows:

In regard to the manner in which I am executing here the work of disinfecting steamers, which is applied only to those bound for New Orleans or Galveston, and in regard to the inspection of ships and passengers, I have reported on November 17, 1899, published page 2320 of Public Health Reports, Vol. XIV. Precisely in the form described I have continued to perform this service.

During the above-mentioned period there have been inspected, receiving bills of health, 158 ships.

It may be stated that in consequence in part of the appearance of the plague in this city, in part of unfavorable commercial situation of this country, there has been here an extraordinary decrease in arrival and departure of vessels. For instance, during the period from July 1 to December 31, 1897, there were issued 238 bills of health.

There were examined from July 1, 1899, up to June 30, 1900, 488 steerage passengers.

From July 1, 1899, to June 30, 1900, there were disinfected here two steamers, bound for New Orleans, receiving certificates of disinfection.

In regard to vaccinations I refer to the above-mentioned report, and I have had no occasion to execute for myself vaccination of passengers on board of ships.

The greater part of my work is devoted in endeavoring to obtain correct and reliable data for my regular and continued reports that I send to you. For this purpose I have to maintain uninterrupted relations with the statistical office, the important hospitals, especially with the Santa Casa de Misericordia, the hospitals for specialties, for smallpox, yellow fever, etc., and to obtain information by means of frequent visits. The cases of plague, which for about a year have been observed here, have led me to continue in contact with the bacteriological institute, with the investigation station, with the isolation hospital, etc.

As my reports will show you, I have taken pains to obtain, in addition to sanitary and statistical information in regard to the city of Rio de Janeiro, data relating to the different States of Brazil.

Respectfully, yours,
W. Havelburg, M. D.,
Acting Assistant Surgeon, U. S. M. H. S.

Surgeon-General Marine Hospital Service.

DETAIL OF MEDICAL OFFICER FOR DUTY AT SANTOS, BRAZIL.

As referred to in the last annual report of the Service, by reason of the outbreak of bubonic plague at Santos, Brazil, it was deemed necessary to detail an officer for duty at that port for the purpose of keeping the Bureau informed as to the progress of the disease and to prevent its introduction into the United States through shipping.

Dr. William H. Carson was appointed acting assistant surgeon, and, by authority of the President, was detailed for duty in the office of the United States consul at Santos. He sailed from New York December 20, 1899, and assumed his duties immediately upon arrival at that port. He was instructed to endeavor to arrange for transportation of coffee direct from plantations to the vessels without storage in warehouses, which are apt to be infested by rats. He notified the Bureau of the departure of all vessels for the United States, giving the ports for which the vessels were bound.

Dr. Carson remained on duty at Santos until May 8, 1900, when, by reason of the decline of plague, he was recalled.

Report of Transactions at the Port of Santos, Brazil, from January 20, 1900, until May 8, 1900.

Marine-Hospital Service,
Office of Medical Officer in Command,
New Orleans, La., January 8, 1901.

Sir: I have the honor to submit herewith a report of my transactions at the port of Santos, Brazil, during the time I was stationed there, from January 20, 1900, until May 8, 1900, the date of my departure from Santos for Washington, D. C., via New York, N. Y., in compliance with cablegram dated "Washington, May 5, 1900.—Carson, Santos. Relieved Santos; return Washington. Wyman."

The day after my arrival at Santos I visited the Hospital Isolamento, where I was received most courteously by the medical staff, and was conducted to all parts of this institution.

There was but one case of bubonic plague in this hospital; in fact, the only case of plague in Santos, and which had been admitted November 17, 1899, over two months prior to my arrival here, and which was not discharged until February 10, 1900, establishing the fact that the epidemic of bubonic plague, as far as Santos was concerned, was virtually ended.

There had been officially recorded from October 15, 1899, to February 10, 1900, 41 cases of bubonic plague as occurring in Santos, resulting in 15 deaths and 26 recoveries.

It is worth noting that of the 41 cases of bubonic plague, a record of which has been furnished the Bureau, that the Anglo-Saxon race was singularly exempt, not one being numbered among those attacked.

The local sanitary authorities disinfected vessels with sulphur and formaldehyde vapor when cases of yellow fever or other contagious or infectious diseases occurred on board ship while in port. Many vessels used the large tin funnels on their hawsers while moored to the granite docks at Santos to prevent the access of rats to the ship.

There were no employees connected with the Service.

I boarded and inspected all vessels while moored at the docks just prior to their departure for the United States.

Twenty-four vessels, with crews numbering 690 and 2 cabin passengers, with 4 pieces of baggage, were inspected.

There was no vaccination; neither was there any method of certifying passengers, except as to the number stated in the United States bills of health issued to the ship, the latter being signed by me as acting assistant surgeon of the Marine-Hospital Service.

Respectfully,

Wm. H. Carson,
Acting Assistant Surgeon, U. S. M. H. S.

Surgeon-General Marine-Hospital Service.

National Quarantine in Hawaii.

As stated in the last annual report, a commissioned medical officer of the Marine-Hospital Service was detailed, August 4, 1898, to serve in the office of the United States consul at Honolulu, in accordance with the provisions of "An act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service," approved February 15, 1893. Upon the outbreak of plague at Honolulu, this officer was of great assistance in preventing the infection of vessels bound to the United States. He also offered his services to the local board of health, in an advisory capacity, and cooperated with them throughout the trying period when plague prevailed. When the act of Congress creating the Territory of Hawaii was approved, the medical officer at Honolulu was directed to assume command of the service at that port, the order being dated May 8, 1900.

LEGAL PROVISION FOR QUARANTINE IN HAWAII.

In the act to provide a government for the Territory of Hawaii, approved April 30, 1900, the following provision is made for national quarantine in the Territory:

AN ACT To provide a government for the Territory of Hawaii.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

* * * * * * *

Sec. 97. That quarantine stations shall be established at such places in the Territory of Hawaii as the Supervising Surgeon-General of the Marine-Hospital Service of the United States shall direct, and the quarantine regulations for said islands relating to the importation of diseases from other countries shall be under the control of the Government of the United States. The quarantine station and grounds at the harbor of Honolulu, together with all the public property belonging to that service, shall be transferred to the Marine-Hospital Service of the United States, and said quarantine grounds shall continue to be so used and employed until the station is changed to other grounds which may be selected by order of the Secretary of the Treasury.

The health laws of the government of Hawaii relating to the harbor of Honolulu and other harbors and inlets from the sea and to the internal control of the health of the islands shall remain in the jurisdiction of the government of the Territory of Hawaii, subject to the quarantine laws and regulations of the United States.

* * * * * * *

SEC. 104. This act shall take effect forty-five days from and after the date of the approval thereof, excepting only as to section fifty-two, relating to appropriations, which shall take effect upon such approval.

Approved, April 30, 1900.

ANTIPESTE SERUM AND HAFFKINE'S PROPHYLACTIC SENT TO HONOLULU.

During the prevalence of plague in Honolulu a large amount of antipeste serum from the Pasteur Institute, Paris, France, and Haffkine's prophylactic, prepared in the hygienic laboratory of this Service, were sent to the medical officer in command, Honolulu, part of the former being sold to the health authorities of the Territory of Hawaii, the latter being furnished to them free of cost. The use of these agents was of great benefit in the suppression of the epidemic in Honolulu and in preventing the spread of same to the United States.

CONCERNING THE ESTABLISHMENT OF A FILTRATION PLANT FOR THE PURIFICATION OF THE WATER SUPPLY OF HONOLULU.

A letter was received from Hon. Alfred S. Hartwell, special agent of the government of Hawaii, concerning certain improvements contemplated in Honolulu, including the establishment of a filtration plant for the water supply, and expression of opinion was invited regarding the latter project. With the letter above referred to were copy of a letter of January 22, 1900, from Special Agent Hartwell addressed to the honorable the Secretary of State, also copy of a letter of January 4, 1900, from President Dole addressed to Special Agent Hartwell, both concerning the above-mentioned matter, copies of which are appended hereto.

921 EIGHTEENTH STREET, *Washington, D. C., January 22, 1900.*

SIR: I understand that President Dole will not call the Hawaiian legislature together, owing to the grave doubt of the validity of legislative acts, but unfortunately the presence of the bubonic plague in Honolulu would probably have prevented the legislature from being convened there at present if there had been no doubt of its legal existence.

The Government and the entire community in Honolulu are putting forth every effort to prevent this disease from spreading beyond the limits of the city of Honolulu. For this purpose a large expenditure of public money is required. I beg to call your attention to the provision of the Hawaiian law authorizing appropriations in such cases, contained in section 6 of article 81 of the Hawaiian constitution, to wit:

"POWERS OF COUNCIL OF STATE.

"SECTION 6. The council of state may, upon the request of the executive council, appropriate public moneys when during the time intervening between the sessions of the legislature the emergencies of war, invasion, rebellion, pestilence, or other great public necessity shall arise."

President Dole writes to me as follows on the 4th instant:

"The board of health, with the full agreement of the Government, has decided upon drastic measures for fighting the plague. At its request the council of state, on the 12th day of last month, appropriated $25,000 for this purpose. On the 30th of December the board of health asked for the following amounts:

"Public improvements in the infected district	$80,000
"Garbage crematory	20,000

"It also recommended the construction of works for filtering the Nuuanu water. We have Mr. Hering's plans and specifications for such a plant. It is estimated that it will cost $116,000. The board also recommends the extension of the sewer system upon Mr. Hering's plans.

"A request will come in to-day from the board for an appropriation of $250,000 for emergency work in fighting the plague. This includes building camps at Kakaao and Kalihi for the residents of infected places, building warehouses at Aala or River Park for goods removed from infected places which have been fumigated, expense of feeding persons quarantined in such camps, and general expenses of guards, assistance, destroying buildings, caring for the sick, fumigating, etc.

"I propose to consult President McKinley in relation to the matter of appropriations for public improvements in the infected districts, the filtering works, and the sewer extension, which, though of vital necessity, are not of such immediate urgency as the other requirements mentioned, which are matters that admit of no delay, and I shall call the council of state together and recommend the appropriations for them.

"The board of health is at work destroying infected buildings by fire. A large part of Chinatown may have to be treated in this way, as the majority of places are of such a character that they can not be disinfected.

"The board of health furnishes bulletins of the status of the disease to Mr. Sewall every other day.

"The board of health has the enthusiastic support of the community in the radical course it has adopted."

Allow me to suggest the importance of thorough and immediate sanitation of Honolulu, not only to overcome the present difficulty, but to guard against a recurrence of disease from the Orient. Honolulu may well be considered as a quarantine outpost of the Pacific coast, so that the expenditure for these purposes will be a great benefit to the mainland as well as to Hawaii.

I trust that the President may authorize a telegram to be sent to President Dole to go by the steamer *China*, leaving San Francisco on the 24th instant, intimating that all proper expenditures authorized by the council of state of Hawaii under the provisions of section 6 of article 81 of the Hawaiian constitution for the purpose of eradicating the bubonic plague will meet the President's thorough approval.

I have the honor to be, sir, very respectfully, your obedient servant,

A. S. Hartwell,
Special Agent of the Government of Hawaii.

The Secretary of State.

[Inclosure.]

Executive Chamber,
Honolulu, Hawaii, January 4, 1900.

Sir: The board of health, with the full approval of the Government, has decided upon drastic measures for fighting the plague. At its request the council of state on the 12th day of last month appropriated $25,000 for this purpose. On the 30th of December the board of health asked for the following amounts:

Public improvements in the infected district	$80,000
Garbage crematory	20,000

It also recommended the construction of works for filtering the Nuuana water. We have Mr. Hering's plans and specifications for such a plant. It is estimated that it will cost $116,000. The board also recommends the extension of the sewer system upon Mr. Hering's plans.

A request will come in to-day from the board for an appropriation of $250,000 for emergency work in fighting the plague. This includes building camps at Kaskaako and Kalihi for the residents of infected places, building warehouses at Aala or River Park for goods removed from infected places which have been fumigated, expense of feeding persons quarantined in such camps, and general expenses of guards, assistance, destroying buildings, caring for the sick, fumigating, etc.

I propose to consult President McKinley in relation to the matter of appropriations for public improvements in the infected districts—the filtering works and the sewer extension—which, though of vital necessity, are not of such immediate urgency as the other requirements mentioned, which are matters that admit of no delay, and I shall call the council of state together and recommend the appropriations for them.

The board of health is at work destroying infected buildings by fire. A large part of Chinatown may have to be treated in this way, as the majority of places are of such a character that they can not be disinfected.

The board of health furnishes bulletins of the status of the disease to Mr. Sewell every other day.

The board of health has the enthusiastic support of the community in the radical course it has adopted.

In an emergency of this character the work devolving upon the president of the board and the duties of the attorney-general are too much for any one man. Mr. Cooper has to give his whole time and strength to the duties of his position as president the board of health and neglect the attorney-general's department. It is desirable that these two positions should no longer devolve on one man, and to make this separation it is necessary that a salary should be provided for the president of the board of health, which can not be done under the present laws. If the following clause could be inserted in the proper place in "the bill to provide a government for the Territory of Hawaii," it would place the matter on the right footing:

"SECTION —. There shall be a salaried president of the board of health, who shall have the powers and perform the duties conferred upon and required of the president of the board of health under the laws of Hawaii."

Or:

"SECTION —. The provision of section 868 of the civil laws that the members of the board of health shall serve without pay is repealed as to the president of the board of health."

Very sincerely, yours,

SANFORD B. DOLE.

Gen. A. S. HARTWELL,
Special Agent of the United States for Hawaii.

In reply to the foregoing the following letter from this Bureau was forwarded by the honorable the Secretary of the Treasury to the honorable the Secretary of State January 22, 1900:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL,
MARINE-HOSPITAL SERVICE,
Washington, D. C., January 22, 1900.

SIR: I am in receipt of a letter from Hon. Alfred S. Hartwell, special agent of the government of Hawaii, in which he requests an expression of my opinion as to the necessity of certain contemplated measures by the Hawaiian government in the city of Honolulu and neighborhood for the purpose of eradicating the bubonic plague and preventing subsequent epidemics of the same scourage, cholera, and other diseases.

Among the measures contemplated is an appropriation of $116,000 for a filtration plant to purify the water supply. I understand that the plans and specifications have already been prepared, and that this plant can be erected within a period of eight or ten weeks.

The Hawaiian government, during the cholera epidemic of 1895, displayed great energy and intelligence, and was successful in promptly suppressing the epidemic, and I feel convinced that the measures which they propose now are necessary and reasonable. With reference to the filtration plant, which seems to be the greatest undertaking and one which is in the nature of a permanent improvement, I have to state that I believe it necessary both for the present work of eliminating the plague and for the future health of Hawaii and of the United States.

While the bubonic plague is not considered to be a water-borne disease to the extent that cholera is, it nevertheless may be conveyed in drinking water, and there are various ways in which the water supply could become infected with the plague bacillus. I will add that the plague is considered to be one of the most difficult diseases to eradicate when once it has gained a foothold, being at times apparently eliminated, only to cause disappointment by its reappearance.

The filtration of the water supply of Honolulu, therefore, both in the present emergency and as a protection against future epidemics, I consider necessary, and I have to respectfully request that the matter be placed before the Secretary of State, to the end that whatever indorsement which may seem to be necessary to be prepared by the President may be recommended.

Respectfully,

WALTER WYMAN.
Supervising Surgeon-General, Marine-Hospital Service.

The SECRETARY OF THE TREASURY.

REPORT FROM HONOLULU.

REPORT OF TRANSACTIONS AT THE PORT OF HONOLULU, TERRITORY OF HAWAII, DURING THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT INCLUDING TRANSACTIONS UP TO SEPTEMBER 15, 1900.

MARINE-HOSPITAL SERVICE,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Honolulu, Hawaii, October 15, 1900.

SIR: As directed by Bureau letter, July 7, 1900, I have the honor to submit the following report:

From November 1, 1899, to June 13, 1900, inspections of all vessels leaving Honolulu for United States ports, previous to issuing the consular bill of health, have been continued; all passengers, cabin and steerage, were carefully examined and the vessel and cargo also inspected as far as practicable.

Plague was discovered in Honolulu on December 12, 1899, and from that time until May 3, 1900, every precaution was taken with vessels bound from ports in the islands to ports in the United States. For a time all steerage passengers were refused by vessels bound from Honolulu to coast ports, and some of the liners would not even take cabin passengers. No Asiatic passengers, baggage, or freight were allowed to go from here from December 12, 1899, to June 1, 1900. All passengers, cabin and steerage, from Honolulu were kept under observation for fifteen days, only taken from non-infected centers, and all their baggage was disinfected previous to departure. A great many took the Haffkine prophylactic against plague from seven to fifteen days before departure.

All mail from island ports where plague existed was disinfected, and all passengers in transit on the different steamer lines were thoroughly inspected. The steamers were kept from 10 to 20 feet from the dock, with rat-proof funnels on all lines from ship to dock, or anchored in the stream and the cargoes lightered to and from the vessel. The passengers in transit were confined to the vessel and none of the crews were given shore liberty.

The crews of all sailing vessels were not allowed shore liberty. Sailing vessels discharged cargo in the stream by lighters, or moored off from the dock with rat-proof funnels on all lines.

No cargo was taken from here to coast ports from December 12 to May 31, except sugar. When vessels had discharged cargo, they were cleaned and fumigated in the stream, and cargo received in the stream direct from interisland steamers from non-infected ports on the other islands, and in the case of sugar from the island of Oahu, it was received in disinfected cars from clean plantations outside of Honolulu, the car sealed and run through to a clean and disinfected warehouse; from the warehouse it was carried on cars by an incline to an elevator, and thence loaded into the vessel by means of chutes at a distance of at least 50 feet from the wharf, rat-proof funnels on all lines. The sugar in the warehouses and to the vessel was handled by a picked and disinfected gang of stevedores, who were lodged in a building adjacent to the warehouse and were under guard night and day and deprived of the liberty of visiting any part of the city. The platforms on the warehouses, the cars and incline were sprinkled at the close of each day with an acid solution of bichloride of mercury, 1 in 500.

Many of the masters and officers of the sailing vessels received the Haffkine prophylactic, and the entire crews, as previously cited, were confined on the vessels for fifteen days and carefully examined prior to departure.

In all, there was in Honolulu 71 cases of plague and 61 deaths, at Kahului, 9 cases and 9 deaths, and at Hilo, 1 suspicious case, also fatal.

When plague was discovered in Honolulu, the Hawaiian board of health at once drew a sanitary cordon around the infected area, Chinatown; house-to-house inspection was at once instituted, the building of detention and isolation camps, the investigation of all suspicious deaths by autopsy and microscopic examination was at once inaugurated; a morgue and pesthouse were hastily provided, and later on all foci of plague were destroyed by fire.

The sanitary fires were numerous, and the dwellings of Caucasians and Asiatics were treated alike when condemned as foci of infection. One of these fires, started in the rear of Kaumakapili Church on Saturday morning, January 20, owing to a strong northeast wind prevailing at the time, got beyond control of the fire brigade, destroyed Kaumakapili Church and almost the entire part of the city known as Chinatown. The fire raged fiercely for some hours and by 4 p. m. had spent its force, sweeping from Kukui street on the north to Nuuanu stream on the west and the harbor on the south.

No lives were lost in this great conflagration, but 5,000 people, nearly all Asiatics and Hawaiians, were rendered homeless. All of these were rounded up at once by the white citizens before they had time to scatter to different parts of the city, and lodged temporarily in Kawaiahao Church and grounds. All were provided with food and some kind of shelter by nightfall. Detention camps at Kalihi, battery, and the drill shed afterwards received these refugees.

After this fire the foci of infection were not numerous and considerably scattered. Among those removed from Chinatown and taken to the detention camps no cases of plague were found. A crematory was hurriedly built on the quarantine island (Mauliola) and the bodies of all plague victims, those dead from tubercle and all suspicious cases, cremated. All persons removed to the detention camps were bathed, given clean clothing, and all of their effects disinfected by sulphur dioxide.

An embargo was placed on the interisland traffic; all of the interisland steamers were in quarantine outside of the harbor; no passengers were taken from Honolulu to the other islands, and freight for the other islands was received directly from the coast vessels. Guards were so placed around Honolulu that no one could leave the city, and I think none attempted it. All of the citizens united in a common cause; there was no bickering, and a more devoted, self-sacrificing community I have never seen. Many of the most prominent citizens acted as sanitary inspectors, and all stood ready to help the authorities with their time and money in the fight against the plague.

Yersin serum and Haffkine's prophylactic were received from the Bureau on February 2 and at once turned over to the board of health for use in suitable cases. Owing to a misconception of the directions relative to the use of the Yersin serum, it was not used in sufficient doses until near the end of the epidemic. The prophylactic was not accepted at once, but later on became very popular, and many were inoculated by the board of health physicians, Dr. Stansfield and myself. Recommendations relative to the mixed method of immunization of those removed from foci of infection to the detention camps were not adopted.

On January 10 plague was discovered at Kahului, on the island of Maui, distant 87 miles from Honolulu. From January 30 to February 10 seven cases were discovered. The first case was found in an Asiatic store in the Chinese quarter. The theory of its origin here is that it came in food stuffs shipped from Honolulu previous to December 12, the time plague was first discovered in Honolulu, and which were not opened and distributed until a short time before the plague was discovered in Kahului.

Chinatown was at once depopulated and the infected area destroyed by fire. The people were removed to an improvised detention camp at the race track. One case subsequently developed among those removed, and one other case was found in a South Sea Island woman, Mrs. English, on February 26, which proved fatal. Rats infected with plague bacilli were found at Kahului, and the last case was supposed to be derived from an infected rat which had escaped from Chinatown.

A suspicious death occurred in Hilo on February 5, 1900, and on investigation proved to be what was considered plague, the same bacillus being found as in the other cases. This case was never pronounced plague by the board of health, and its possible origin is shrouded in mystery. No other cases of a suspicious nature developed in Hilo subsequent to February 5, 1900.

On February 13 Mr. Haywood, Dr. C. B. Wood, and I left Honolulu on the U. S. Navy tug *Iroquois*, which was kindly furnished through the courtesy of Captain Merry and Captain Pond, U. S. Navy. We visited Kahului, Hilo, and Kihei, inspected the work done at the different places and made arrangements for the shipment of sugar to United States ports under the usual sanitary precautions already outlined as employed at Honolulu.

The last case of plague occurred in Hilo on February 5, the last in Kahului on February 26, and the last in Honolulu on March 31, 1900. Quarantine was raised and all restrictions removed thirty days later, on April 30, 1900. During the three months and nineteen days that plague existed here, owing to the precautions taken by the representatives of the Service on duty here, commerce between the islands and the rest of the world was practically uninterrupted, only reasonable restriction was placed on passenger travel, and in all that time no plague infection was carried from any of the infected Hawaiian ports to United States ports on the mainland.

STATISTICS.

From November 1, 1899, to June 13, 1900, 64 steamships and 187 sailing vessels were inspected prior to departure from Honolulu for United States coast ports, the Philippine Islands, and Guam. The nationalities of the steamships were: American 19, U. S. Army transports 11, British 19, Japanese 11, Norwegian 2, Hawaiian 1, U. S. Navy 1. These carried in transit 1,469 cabin passengers, 7,438 steerage, and 6,446 crew, and from Honolulu they carried 1,101 cabin, 601 steerage, and 29 crew, and the total number landed from the vessels at Honolulu was 10,639 passengers and 7 crew. The greater number of the passengers landed at Honolulu were Asiatics destined for work on the sugar plantations. The baggage of all passengers from Honolulu to United States ports by steamship was disinfected by formaldehyde and labeled, from December 12 to April 30; in all, some 4,000 pieces.

The sailing vessels inspected and given consular bills of health from November 1 to June 13, 1900, numbered 187. The nationalities of these were: American 142, British 26, Hawaiian 13, German 5, and Norwegian 1. These carried a total of 72 passengers and 2,172 crew. The cargoes were mostly sugar, ballast, and in the cases of the transports military stores. Up to June 13, 1900, all boarding of incoming vessels had been performed by the Hawaiian authorities. On June 14, 1900, all maritime quarantines in the Hawaiian group, in accordance with the provisions of the Territorial bill for Hawaii, approved April 30, 1900, were transferred to the Marine-Hospital Service. From December 12, 1899, to April 30, 1900, 130 vessels were fumigated by sulphur dioxide prior to taking cargo or ballast for United States ports.

But one vessel brought known contagious disease to this port during the period from November 1, 1899, to June 13, 1900, viz, the U. S. Navy steamship *Solace*, which arrived May 9 with a case of smallpox on board. The case was removed to the quarantine station, and all those on board who were not protected by vaccination were vaccinated and the quarters disinfected. The ship left for Guam and the Philippine Islands against my advice on May 14, and no further cases developed, with the exception of one—the male nurse who attended the case on the ship—who had a mild attack of varioloid.

The general health of the islands presents no marked changes; tuberculosis is increasing and the death rate was high during the months of November and December, 1899, and January, 1900.

Bronchial diseases, malarial and enteric fevers have prevailed to some extent, and it is worthy of note that the systematic house-to-house inspection during the plague discovered quite a number of lepers, who were at once segregated at Kalihi receiving station until their removal to the leper settlement at Molokai.

From November 1, 1899, to June 13, 1900, one surgeon and one attendant were on duty in the office of the United States consul-general, and from February 1 to May 27, 1900, one assistant surgeon.

SUPPLEMENTAL REPORT, JUNE 14 TO SEPTEMBER 15, 1900.

On June 13 the United States Marine-Hospital Service assumed charge of all maratime quarantine matters in the Hawaiian Islands. The quarantine station was built by the Hawaiian government some ten years ago. It is located on Mauliola Island to the south of Honolulu, and distant about 1¼ miles. The location is a fairly good one, but it is not very easy of access, being approached from the harbor by a tramway half a mile long. It can be approached from Honolulu by vehicle and by crossing a tidal water flat between Mauliola Island and Oahu Island, but the road is not good; the drive is long and has been made almost impassable lately by the flow of material dredged from the harbor proper and pumped over the flats at Iwelei directly opposite the quarantine island. I have represented to the governor of the Territory the necessity of keeping this road open, and he has promised that the matter shall be attended to.

The buildings on the station comprise detention barracks for the lodgment of Asiatics, hospitals, quarters for guards and attendants, a small house intended for cabin passengers, but which has never been furnished, steam disinfecting and sulphur plants, a number of detached buildings, and a crematory. In all there are 18 or 19 buildings. All are constructed of cheap and rough material, and are badly in need of repairs, none having been made for a period of about eight years. Repairs to the tramway and buildings are now being taken up. An additional house for the lodgment of cabin passengers held in detention is an urgent necessity, as the building erected for that purpose has but 12 small rooms, and at the best could not accommodate more than 24 of this class. A new building or buildings of at least treble the capacity should be erected at once.

There is no quarantine plant or buildings at Hilo, Kihei, or Kahului. A small station should be fitted up at Hilo, as it is 240 miles from Honolulu. Kihei and Kahului can be used as boarding stations until there is greater necessity for an equipment, vessels with contagious diseases arriving there to be remanded to Honolulu for treatment.

A floating disinfecting plant is badly needed at Honolulu, and one is now being provided by the Bureau, but has not yet reached here.

During the existence of plague in Honolulu a large and commodious wharf, 400 feet long and 120 feet wide, was built by the chamber of commerce on the eastern side of the harbor and near the channel entrance. It is placed on piles covered with copper and is completely surrounded by water, the object being to make it proof against the access of rats from the land. It was designed to receive freight at this wharf from clean ports and send it to the other islands without the necessity of landing and disinfecting it in Honolulu proper.

The government of the Territory has offered to give me a portion of this wharf for quarantine purposes, and if a sulphur furnace and bichloride tanks and pumps, etc., are furnished and erected at the seaward end of the wharf vessels that required disinfection could lay along this wharf and have it done without coming in communication with the rest of the shipping or docks in the harbor. At present all freight from the Orient and Australasian ports is disinfected before distribution to the consignees by sulphur fumigation at the Pacific Mail dock. The furnace is owned by the Hawaiian board of health, but I am allowed to use it by special agreement.

All expense connected with the fumigation of these cargoes is borne by the consignees. No vessels from the Orient or Australasian ports are allowed to come directly into the docks; they are moored from 6 to 12 feet away from the dock, all ports are closed, and rat-proof guards and in some cases bird-lime placed on all lines leading from the ship to the dock. All steerage passengers and their baggage are taken to the quarantine station, the passengers bathed, and their baggage disinfected by steam, sulphur, and dipping, and held from fifteen to twenty days, counting the time of the voyage from the last port.

From June 14 to September 1 no means of boarding incoming vessels existed except by means of the pilot boat used by the pilots to board such vessels. Temporary arrangements were made so that the boarding officer could accompany the pilots until some more independent means of boarding vessels was furnished. A steam cutter 36 feet long was supplied by the United States Marine-Hospital Service and reached Honolulu on August 25, and was put in commission September 1, 1900.

She is a good vessel and is rendering good service, but a tug should be supplied, as all the boarding of vessels is done outside of the harbor, and a larger vessel, on which the crew could subsist and be quartered, is what is required. All passengers are mustered and inspected in the usual way, all Asiatics being stripped, and all examinations made by daylight.

Form 1932a, "Certificate of discharge from national quarantine," and Form 1952, "Quarantine declaration," are used, the distance from the dock and the position the vessel is to occupy being stated on Form 1932a.

STATISTICS.

From June 14 to September 15, 1900, 57 steamships arriving at Honolulu were inspected. The nationalities of these were: American, 18; U. S. army transports, 7; U. S. navy vessel, 1; British, 18; Japanese, 8; Norwegian, 2; French, 1; German, 1; Chilean, 1. These carried 2,334 cabin, 6,758 steerage, and 6,850 crew.

The sailing vessels arriving at Honolulu and inspected from June 14 to September 15 numbered 92. The nationalities of these were: American, 80; British, 9; German, 2; Italian, 1. These carried 186 cabin passengers, 11 steerage, and 1,379 crew.

From June 14 to September 15, 1,495 pieces of baggage have been disinfected at the quarantine station on Mauliola Island.

Health affairs in Honolulu are in fair condition. There has been no plague or suspicious cases since March 31, 1900. Ordinary diseases are only noted. There are about 1,000 lepers at the settlement on Molokai. Isolation is strictly carried out, and all mail from the settlement is disinfected there and in Honolulu.

There are employed at present at the quarantine station the following employees: James K. Wright, superintendent; N. H. Trombly, yardman; Sam Yosida, cook; Samuel Pinao, boatman; Tsune Hiro, yardman.

On the steam cutter *Oahu* are employed: Charles Gardner, pilot; Charles E. Bradley, engineer; John Nelson, deck hand, fireman, and watchman.

There is one attendant, Manuel Silva, employed in the office as messenger.

The officers on duty at the station are: Surg. D. A. Carmichael, Asst. Surg. J. W. Amesse, Acting Asst. Surg. G. W. Jobe, and Hospital Steward Frank L. Gibson. At Hilo, Hawaii, Acting Asst. Surg. John G. Grace, as boarding and quarantine officer. At Kihei, Maui, Acting Asst. Surg. R. H. Dinegar, as boarding and quarantine officer. At Kahului, Maui, Acting Asst. Surg. John Weddick, as boarding and quarantine officer.

Respectfully,

D. A. CARMICHAEL,
Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

Philippine Islands.

MARITIME QUARANTINE IN THE PHILIPPINE ISLANDS PLACED UNDER THE MARINE-HOSPITAL SERVICE.

Considering that the National Government should establish quarantine in the Philippine Islands on similar lines to those followed in the case of Cuba, Porto Rico, and Hawaii, the following letter was addressed to the honorable the Secretary of the Treasury upon this subject:

December 30, 1899.

Sir: I have the honor to invite your attention to the necessity of having the quarantine laws and regulations extended to the Philippine Islands in the same manner as they were extended to Cuba and Porto Rico.

The prevalence of bubonic plague in the Orient and Honolulu menaces Manila and other ports in the Philippines, for which reason there should be proper quarantine supervision over vessels arriving at Philippine ports from Hongkong and other plague-infected ports, and the free intercourse between Manila and San Francisco renders it a matter of great importance to establish proper supervision over vessels leaving the Philippines for ports of the United States.

I have been informed that it is the desire of the medical inspector of the U. S. Army, who has been directed to proceed to the Philippines as chief surgeon, that the Marine-Hospital Service should immediately take charge of the quarantine, and that a recommendation to that effect would be forwarded by him. Whether it has been thus forwarded I can not say, but anticipating the necessity of some quarantine procedures with your approval there has been shipped to the Philippines two complete quarantine plants and disinfectants. These shipments were made through the Quartermaster-General's Department after receiving a verbal concurrence in the matter from the honorable the Secretary of War. The erection of these plants and their proper use should be in the hands of those who are accustomed to them, and, if the proposed Executive order is signed, competent officers and attendants will be sent for this purpose.

Respectfully,

Walter Wyman,
Surgeon-General M. H. S.

The Secretary of the Treasury.

Note.—Proposed Executive order was inclosed.

This communication was forwarded to the Secretary of War on January 2, 1900, by the Secretary of the Treasury, with the request that the draft of proposed Executive order, also transmitted, should be submitted to the President for signature if approved by the War Department. In accordance with this request the following Executive order was issued:

EXECUTIVE ORDER PLACING QUARANTINE IN THE PHILIPPINES UNDER THE MARINE-HOSPITAL SERVICE.

[Circular No. 35.]

War Department,
Washington, D. C., January 4, 1900.

The following order of the President, relative to quarantine regulations for ports in the Philippine Islands, is hereby published for the information and guidance of all concerned:

"Executive Mansion,
"*Washington, D. C., January 3, 1900.*

"To prevent the introduction of epidemic disease, it is ordered that the provisions of the act of Congress approved February 15, 1893, entitled 'An act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service,' and all rules and regulations heretofore or hereafter prescribed by the Secretary of the Treasury under that act are to be given full force and effect in the Philippine Islands, in so far as they are applicable, and the following additional rules and regulations are hereby promulgated:

"The examination in ports of the Philippine Islands of incoming and outgoing vessels and the necessary surveillance over their sanitary condition, as well as of cargo, passengers, crew, and of all personal effects, is vested in and will be conducted by the Marine-Hospital Service, and medical officers of that Service will be detailed by the Secretary of the Treasury as quarantine officers at the ports of Manila and Iloilo immediately, and at other ports in the Philippine Islands as soon as practicable or necessary.

"Quarantine officers shall have authority over incoming vessels, their wharfage and anchorage, in so far as is necessary for the proper enforcement of the quarantine regulations, including vessels of the army transport service and noncombatant vessels of the Navy.

"Collectors of customs at ports of entry will not permit entry without quarantine certificates.

"Any vessel leaving any port in the Philippine Islands for any port in the United States, or its dependencies, shall obtain a bill of health from the quarantine officer, when such officer is on duty; said bill of health to correspond to the consular bill of health now required by Treasury regulations; and the bill of health shall not be given to an outgoing vessel unless all quarantine regulations have been complied with. At ports where no medical officer is detailed the bills of health will be signed by the collector of customs or other officer to whom such duty has been legally delegated. Special regulations relating to the bills of health to be obtained by vessels of the United States Navy will be promulgated by the Secretary of the Treasury.

"The medical officer detailed under this order as quarantine officer at the port of Manila shall be the chief quarantine officer for the Philippine Islands. It shall be his duty to make appointments and removals from the Service in the Philippines (subject to the approval of the Secretary of the Treasury), and shall authorize necessary expenditures, under such regulations as the Secretary of the Treasury may prescribe.

"The regulations for the government of the Marine-Hospital Service shall, so far as practicable, have force and effect in the management of the quarantine service in the Philippine Islands.

"The expenses of the quarantine service will be charged against the revenues of the islands, and a sum not to exceed three hundred thousand dollars ($300,000) in each fiscal year is hereby set aside from the revenues collected in said islands for this purpose. The expenses shall be paid therefrom upon the certificate of a detailed quarantine officer, and upon the approval of the chief quarantine officer for the Philippine Islands.

"The chief quarantine officer shall render a report on the last day of each month to the Supervising Surgeon-General of the Marine-Hospital Service, who will issue to him necessary instructions.

"The epidemic fund will be reimbursed from the revenues of the islands for the cost of disinfecting appliances and materials ordered to be forwarded to the islands prior to the date of this order.

"WILLIAM MCKINLEY."

This order to be duly proclaimed and enforced at ports in the Philippine Islands.

ELIHU ROOT,
Secretary of War.

On January 4, 1900, the medical officer stationed at Hongkong, China, was directed to immediately proceed to Manila and assume command of the operations in connection with quarantine.

On January 5 he was directed to report to General Otis, U. S. Army, as quarantine aid.

On January 17, 1900, he was detailed as temporary chief quarantine officer for the Philippine Islands, as well as quarantine officer for the port of Manila.

The following instructions were issued to the chief quarantine officer:

JANUARY 18, 1900.

SIR: I transmit herewith a copy of War Department circular No. 35 (Division of Customs and Insular Affairs), promulgating Executive order of January 3, 1900, providing for the establishment of a quarantine service in the Philippine Islands to be conducted by officers of the Marine-Hospital Service.

Under this order you are hereby detailed temporarily, by direction of the Secretary of the Treasury, as quarantine officer at the port of Manila and as chief quarantine officer for the Philippine Islands, confirming Bureau telegram of the 17th instant.

The Executive order itself very largely defines your duties and makes the regulations of the Service and the quarantine regulations effective in the Philippine Islands so far as applicable.

A medical officer will be detailed at once by the Department as quarantine officer at the port of Iloilo, and such additional details will be made from time to time as may be recommended by you. You are authorized by the Executive order to make appointments to and removals from the Service in the Philippines, but all such transactions should be promptly reported for the approval of the Secretary of the Treasury. This will include the appointment of acting assistant surgeons and their detail as quarantine officers at ports where such details may be, in your judgment, immediately necessary, these details to be subsequently approved by the Secretary of the Treasury. All officers of this Service, whether commissioned or noncommissioned, on duty in the Philippine Islands will be under your control and direction, and you are authorized to make such changes in the details as may be necessary, promptly reporting your action for approval.

It is expected that salaries and other expenses of the quarantine service will be paid by the disbursing officers of the islands upon your approval, and you are informed that your traveling expenses from Hongkong to Manila, and from Manila to such ports in the Philippines as it may be necessary for you to visit from time to time, will be chargeable against the sum set aside from the revenues of the islands from the quarantine service.

You should keep a careful record of all expenditures authorized by yourself, in order that the annual appropriation of $300,000 may not be exceeded.

The disinfecting machinery and materials which have already been shipped to Manila, addressed to Depot Quartermaster C. P. Miller, who has been requested to turn them over to you, will be charged against the quarantine fund of the islands, and you are informed that the total amount for these items is $7,253.91.

The blank forms prescribed by the military authorities will be used for rendering bills, pay rolls, and other accounts, instead of the blank forms prescribed by the Treasury Department. The Treasury blanks will be used for rendering reports required by regulations to be sent to the Bureau.

In the performance of your duties the Bureau relies largely upon your judgment and discretion, which you should exercise with due regard for the authority given you under the Executive order and the regulations of the Service. You will render a report at the close of each month, covering all your transactions, in addition to which the Bureau desires to have frequent communications from you regarding any matters of sanitary interest and any change in the operations of the service in the Philippines, so as to keep thoroughly in touch with the work as it is carried on.

You will formulate such rules and regulations as may be necessary to suit the local conditions, transmitting them to the Bureau for subsequent Department approval, and will devise such records and reports as may be necessary for the proper conduct of the business intrusted to you. For such supplies, including disinfecting machinery, materials, and appliances as you can not obtain in Manila, you may make requisitions on the Bureau, which will give you all possible assistance in carrying out the duties assigned to you.

Respectfully,

W. Wyman,
Supervising Surgeon-General, M. H. S.

Approved:
L. J. Gage, *Secretary.*

P. A. Surg. J. C. Perry,
U. S. Marine Hospital Service, Manila, P. I.

MARIVELES QUARANTINE STATION.

Under the Spanish régime the quarantine station was conducted at Mariveles, a small inlet from Manila Bay, and this was transferred by the military authorities to the jurisdiction of the Marine-Hospital Service for quarantine use. The site is well located for the purpose, and all vessels reaching Manila which require disinfection are remanded to the Mariveles station for treatment. Following is a description of this station:

MANILA, P. I., *March 15, 1900.*

SIR: I have the honor to submit the following brief report on the Mariveles Quarantine Station:

This place was selected as a quarantine station by the Spanish, and was partly equipped for the purpose of quarantining vessels, but there are no evidences that they bathed the crew and passengers arriving on infected vessels, as no bath houses exist and no buildings or means for disinfection. In fact, I have reliable information that this process was only carried out by the primitive process of burning sulphur in pots for the disinfection of the vessel, while little if any attention was paid to the disinfection of baggage.

The passengers were landed and detained, however, and barracks exist for this purpose. They are much in need of repairs and can not be utilized until the necessary changes have been made.

Situation.—Mariveles is the name of a small native village of 300 inhabitants situated on the bay of the same name, and is located about 300 yards from the quarantine reservation.

Mariveles Bay is a small arm of Manila Bay, situated on the north side of its entrance It is bounded on two sides by high hills, and the mountain 2 miles distant protects it on another. It is well sheltered from typhoons and is considered the best harbor in the islands against these storms.

The entrance is wide and free from dangers to ships of every size; there is deep water everywhere. The anchorage is excellent and sufficient for detaining any number of vessels that it may be necessary to place in quarantine.

The station is situated at the head of the bay and will be described in detail below. It is about 28 miles from Manila and 3 miles from Corregidor Island, which protects the entrance of the bay from storms from the south. This is the only site in Manila Bay suitable for quarantine purposes, as all along the shores of the bay the water is shallow and during the typhoon season becomes very rough.

It is conveniently located for all vessels arriving at Manila, as they have to pass it, and no time would be lost by calling at the station. The only other place that could be considered is Subig, but that is 15 miles farther away, is somewhat out of the course of vessels, and has no quarantine buildings of any kind.

Taking everything into consideration, I deem Mariveles the only available and suitable site, and it can be so equipped as to meet the requirements of the increased commerce at this port and emergencies of every kind.

There are two objections, however, the proximity of a village and the small size of the reservation available, necessitating crowding of the buildings. The first can be overcome by constructing a fence and preventing relations between the village people and the attendants at the station; the latter is to a marked extent irremediable, as the filling of the lagoon of salt water in the back would entail considerable expense.

There is a stone pier which is approximately 383 feet long by 12 feet wide, at the end of which is a transverse one used as a wharf, but the water at the face of this is only 12 feet deep at low tide, and consequently it can only be used as a landing for small vessels. It was the custom of the Spaniards to utilize it for this purpose, bringing all the passengers to the shore in small ship's boats. It will be necessary to construct a wharf as soon as possible, so that large vessels can come alongside for disinfection.

Buildings.—There are in all 7 buildings, 5 of which are in good condition and only need painting and some minor repairs to make them ready for occupation. The other 2 will need extensive repairs, new roofs, and additions to make them suitable and useful barracks.

The buildings may be divided and described as follows:

1. Officers' quarters, a building of stone with galvanized iron roof, 50 by 38 feet, containing 4 rooms. This is in good condition and will provide suitable quarters for 1 or 2 officers. This building is the center one shown on the print of the reservation and buildings.

2. A substantial building of larger dimensions, 70 by 42 feet, situated to the right of the preceding, was probably used as detention barracks for cabin passengers, although it is not well suited for this purpose, as the provisions for this class of passengers are inadequate; still it is my intention to use it for this class of suspects until the proposed new building can be erected. It is divided into 4 large rooms and only minor repairs and painting are necessary.

3. The third building of this type is situated to the left of the one described as officers' quarters, is 70 by 42 feet, constructed of stone and divided into 3 rooms by a partition through the length of the building, furnishing a long room on the back and

2 smaller rooms in the front portion. This can be utilized at present as a hospital for noncontagious diseases.

The 2 other stone buildings may be briefly described as small, 1-room structures, 1 of which was formerly used as a storeroom, the other as a kitchen for cabin passengers. They can be made to serve the same purpose now.

In this description I have indicated the use which these buildings are intended to serve at present. Later, when the proposed new structures can be erected, the congestion will be relieved, and I deem it advisable to use the central building as an executive one and the other buildings for officers' quarters.

4. There are 2 barracks 100 by 40 feet and 72 by 20 feet, respectively, constructed of wood with nipa roofs. They are much dilapidated and repairs will be necessary in order to make them suitable for the detention of steerage passengers. The proposed alterations and additions are shown on the plans submitted, the object being to provide 4 separate compartments for the segregation of the suspects, each crowd in the building receiving their meals in the dining room at a different time.

New work needed.—Regarding the new work necessary at this station, that which is of prime importance is the construction of a wharf, and more elaborate plans and specifications are now being prepared so as to obtain bids and get the work started. The plan is to install the disinfecting plant on this structure, and the relative positions of the bathrooms for steerage and cabin passengers are shown. My idea is to build permanent structures and of such dimensions as to insure quick and effective work. I think the proposed bath houses will meet all requirements and are well arranged from a sanitary view, as all intercourse between unclean passengers and those that have been bathed can be prevented, and clothes before and after disinfection can be kept separate. The detention rooms are absolutely essential in this climate where there is so much rainfall.

Another building that should be erected immediately is the hospital for contagious diseases. The print submitted shows, in my opinion, the proper style to be adopted. The plan is to further supplement this by 2 tents for the treatment of those sick with smallpox.

The plans also show 4 new barracks for the detention of steerage passengers. It has been deemed advisable to have small buildings and a greater number of them, as by this means the number of suspects can be better divided into segregation groups, and those from different vessels can be kept separate during their period of detention. Through mistake the closets and bathrooms have not been shown, but they will be of similar design to those shown in connection with the barracks now existing.

It is further proposed to separate all the barracks from each other and the officers' quarters by the construction of fences.

Water supply.—The water supply will entail considerable expense, as it will be necessary to construct a system of piping from a mountain stream 2½ miles distant. This will give an abundant supply of pure water with sufficient pressure to obviate the use of tanks. Wells are impracticable, as water is reached 8 feet below the surface, and it would be impossible to make one of sufficient depth to give the necessary quantity.

I have already prepared specifications for repairing the existing barracks and will commence work on them very soon. The cost of material and work performed will be approximately $9,000. All building material is very expensive here and costs many times more than it does in the States.

I also propose to have a temporary bath house, constructed of nipa, for immediate use, and to disinfect baggage by formalin process until the wharf and permanent buildings for baths and the installation of the disinfection plant can be erected.

Respectfully,

J. C. PERRY,
Passed Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

HAFFKINE'S PROPHYLACTIC SENT TO THE PHILIPPINE ISLANDS.

On February 9, 1900, 2,000 bottles of Haffkine's prophylactic were sent to the chief quarantine officer for the Philippine Islands, to be used during the course of the outbreak at that port.

REPORT OF MANILA.

REPORT OF TRANSACTIONS AT MANILA FOR THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT FOR THE PERIOD FROM JULY 1, 1900, TO AND INCLUDING SEPTEMBER 15, 1900.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Manila, P. I., July 14, 1900.

SIR: I have the honor to hereby transmit report of the quarantine work at this port for the period ending June 30, 1900:

* * * * * * *

After the Executive order was received, together with that detailing me chief quarantine officer, I was independent and conducted my work accordingly; still I was unable to secure money for some time with which to buy a boarding launch or pay incidental expenses.

However, I assumed absolute control of all inspection of vessels on February 26, and since that time the work of establishing the Service has been pushed forward as rapidly as possible.

There was no property belonging to the quarantine department that could be transferred, so I had absolutely nothing with which to start. No launch could be secured in Manila, either for hire or sale, and the boat had to be purchased in Hongkong.

Mariveles, the old Spanish quarantine station, was held by the insurgents until February 1. A few days later I inspected this site and the buildings present and immediately commenced the preparation of plans showing what existed and that which was necessary to equip the place as a modern quarantine station.

On March 7, 1900, my requisition for $25,000 Mexican was approved and the money set aside for buying and equipping a boarding boat. After some delay a launch was secured in Hongkong and placed in commission on April 27, 1900.

On April 1 an office was secured, after much difficulty, such buildings being few.

On April 21, upon my requisition, $150,000 Mexican was set aside for commencing the equipment of the Mariveles station, and on May 5 a contract was awarded for repairing the two old existing barracks and for constructing a hospital for contagious diseases. This work was finished on July 14, 1900.

The construction of a wharf being of paramount importance, bids were advertised for on May 11, 1900, but as all the first proposals submitted were considered too high new ones were solicited, and the lowest was accepted for building a wharf 400 feet long and 45 feet wide, and piling and decking for detention room for steerage passengers, 108 feet long and 38 feet wide; bath house for steerage passengers, 128 feet long and 38 feet wide; bath house for cabin passengers, 110 feet long and 36 feet wide. This contract was awarded on June 18, but the work will not be finished until November. Until that time the steam disinfecting plant can not be installed nor the bath houses equipped.

The additional buildings that should be erected during the year are three new detention barracks, detention house for cabin passengers, hospital for noncontagious diseases, quarters for attendants, bath houses, and the construction of fences. The approximate cost of this new work and the furnishing and equipment of the same is shown in my estimate of the expenses for the quarantine service for the fiscal year 1901.

The work done during the period embraced by this report is shown in the tabulated statement below:

Month.	Vessels inspected.		Crew inspected.	Passengers inspected.	Crew vaccinated.	Passengers vaccinated.	Vessels disinfected.	Remarks.
	From foreign ports.	From domestic ports.						
			Number.	*Number.*	*Number.*	*Number.*	*Number.*	
February	34	103	4,231	2,559				
March	58	231	9,501	7,482	2,703	43	2	Smallpox among crew.
April	37	292	9,078	5,819	2,446	127	1	One death from plague.
May	41	278	9,058	8,239				
June	55	193	8,347	7,628				
Total	225	1,097	40,215	31,727	5,149	170	3	

It will be seen from the above that little disinfection has been done, because no facilities have been available. Realizing the inability to properly do this work, I had a conference with the agents of the different steamship companies when plague commenced to increase in Hongkong and Amoy and suggested to them that it would be inadvisable to bring steerage passengers from these ports during the prevalence of the disease, as it would render their ships liable to infection and necessitate detaining the vessels and all on board until the period of incubation of plague had passed. The result has been that no steerage passengers have been brought from these places since May 1, 1900. As an additional safeguard, I required the disinfection of all the crew and their effects, as well as that of all steerage passengers for Australian ports. The classes mentioned above are not allowed to come on shore at Manila. I believe this procedure was a wise one and the best that could be accomplished under the circumstances.

On June 20 Assistant Surgeons L. D. Fricks and H. A. Stansfield were detailed to take charge of the quarantine work at Iloilo and Cebu, respectively.

Respectfully,

J. C. Perry,
Passed Assistant Surgeon, U. S. M. H. S.,
Chief Quarantine Officer for the Philippine Islands.

Surgeon-General Marine-Hospital Service.

Office of the Chief Quarantine Officer
for the Philippine Islands,
Marine-Hospital Service,
Manila, P. I., September 24, 1900.

Sir: I have the honor to hereby submit the following supplemental report of the transactions of the quarantine service in the Philippines for the period from June 30 to September 15, 1900:

My previous report showed the difficulties in commencing the work and what had been accomplished in equipping the Mariveles Quarantine Station. Since that time little new has been done, and the work on the wharf is progressing very slowly; still I expect to have it completed in two months and have the station equipped for the disinfection of ships and baggage and the detention of suspects by January 1, 1901.

Although a partial financial statement was given in the last report, the expenditures for the fiscal year ending June 30, 1900, are more fully submitted herewith. Total amount of money received, $175,000 Mexican, disbursed as follows: Repairs to two barracks and construction of hospital, $50,333; disinfecting apparatus and disinfectants, $11,779.41; launch *Zapote*, for use as boarding boat, $20,648.98; first payment on wharf, $34,400; launch *Mariveles*, boarding boat at Iloilo, $18,000; current expenses, $13,694.95; refunded to the treasurer of the Philippine Islands, $26,143.66.

During the months of July and August the sum of $152,000, Mexican, has been furnished from the allotment for the fiscal year 1901. The amount of $8,783.66 has been expended for current expenses, leaving on hand $143,216.34 for the purchase of launches for use at Cebu and Mariveles and the construction of bath houses, detention room, and a disinfecting shed on the wharf.

In the previous report the buildings that should be erected to make the station complete and thoroughly equipped for any emergency were enumerated, but it is now the intention to construct one other barrack building, quarters for attendants, and fences to meet immediate needs, leaving the construction of the others until later.

The work at Iloilo and Cebu has become well organized and is progressing without any friction. There are no means for either the disinfection of ships, personal effects, or the isolation and detention of suspects at either of these ports, and it will be necessary to remand ships to the Mariveles station for treatment. A small plant should be installed at Iloilo as soon as practicable and a small floating disinfecting plant equipped at Cebu.

The work at this station and that of Iloilo and Cebu, for the period embraced by this report, is shown by the table below.

MANILA, P. I.

Month.	Vessels inspected from—		Crew inspected.	Passengers inspected.		Vessels held for observation.	Persons quarantined for observation.	Pieces baggage.		Bills of health issued.
	Foreign ports.	Domestic ports.		Cabin.	Steerage.			Disinfected.	Inspected.	
	Number.	*Number.*	*Number.*	*Number.*	*Number.*	*Number.*	*Number.*	*Number.*	*Number.*	*Number.*
July	44	190	7,767	939	4,062	1	13	....	....	200
August	57	119	7,041	836	3,462	....	16	670	473	155
September 1 to 15	24	61	3,131	395	3,054	....	16	....	....	89
ILOILO, P. I.										
July	4	30	1,191	....	1,133	....	....	....	....	50
August	7	48	1,664	73	1,199	....	....	....	....	71
September 1 to 15	4	20	841	....	796	....	....	....	....	31
CEBU, P. I.										
July	10	146	3,510	125	1,050	....	....	....	....	311
August	8	167	3,465	108	1,154	....	....	....	....	301
September 1 to 15	....	....	....	....	....	....	....	....	....	....

Respectfully,

J. C. PERRY,
Passed Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE HOSPITAL SERVICE.

JAPAN.

DIFFICULTIES ENCOUNTERED IN CARRYING OUT THE UNITED STATES QUARANTINE REGULATIONS AT THE PORT OF YOKOHAMA.

The following letter from the acting assistant surgeon on duty at Yokohama, together with circulars issued by him, will explain some of the difficulties which have been encountered by said officer and the means which he has adopted to overcome same:

OFFICE SANITARY INSPECTOR,
U. S. MARINE-HOSPITAL SERVICE,
Yokohama, Japan, December 19, 1899.

SIR: I have the honor to forward herewith copies of circulars to steamship companies, issued by me in connection with the outbreak of plague at Kobe and in its neighborhood, of dates November 22 and December 14. The reasons for a joint issue of these notifications by the United States and Hawaiian authorities appear in the circular of the 22d ultimo and are, I think, satisfactory.

Most of the steerage travel at the present time being of passengers from the southern provinces, who reach Yokohama by rail, so long as the plague appeared to be confined to a suburb of Kobe, at a distance from the railway station, and held in strict isolation by the native police, I allowed such passengers to embark, upon the production of evidence that they had passed directly through Kobe without leaving the railway station or communicating with the town. The securing of such evidence was rendered comparatively easy by the fact that, with few exceptions, the passengers are transported in large groups, upon special trains, and under the charge of employees of the emigration companies. These latter were compelled to produce a certificate from the station master at Kobe, who is a Government official, giving the facts as to the passing emigrants.

When such passengers were embarked at Yokohama, after the most thorough inspection, I attached to the ship's bill of health, in each and every case, a letter to the United States quarantine officer at the port of destination, and, if the voyage was via Honolulu, sent a copy of the same to the Hawaiian health officer, in which was given the status of the passengers as to origin, manner of reaching Yokohama, etc. No passenger whatever from Kobe or Osaka was allowed to ship, either at the former port or at Yokohama.

After the investigations of the leading experts dispatched from Tokyo to the epidemic area, the reports of these gentlemen convinced me that the field of infection is much wider than had been supposed, and I deemed it necessary to treat the whole district as dangerous.

Accordingly, after consultation with the United States consul-general and the Hawaiian officials, the circular of December 14 was issued and is being strictly enforced.

The conditions here being peculiar in some respects in that, as you are well aware from my previous reports, no reliable isolation is possible in default of the assistance of the police, which, when I attempted strict ante-embarkation quarantine on a former occasion, was invariably refused; and as at present I find it absolutely impossible to obtain any controllable premises sufficient to accommodate the emigrants already in Yokohama and awaiting shipment, isolation, which would perhaps have been more strictly in accordance with the regulations, is not enforced. This, I think, can do no harm, as there has not been even a single case of plague north of Osaka Fu. The intending passengers are, however, easily kept under observation during their detention of fifteen days, being congregated in large native hotels and their arrival and location noted and checked by the police reports, which are very accurate.

The question of the effectual disinfection of the large number of passengers now being dealt with would have proved almost insuperable but for the fact that I had recently purchased, personally, a very large and efficient formaldehyde generator, and that I have been fortunate enough to be able to rent premises readily adapted to the purposes of bathing and disinfection.

I have necessarily employed a small staff of men, a reliable European being in charge; and as I visit the disinfection depot frequently, I am satisfied that the process of purification is thoroughly carried out.

I may add that the steamship companies and even the native emigration agencies are heartily supporting me and rendering efficient assistance.

I trust my action in the present emergency may meet with your approval, having already secured that of the United States minister and consul-general.

I am, sir, very respectfully, your obedient servant,

Stuart Eldridge, M. D.,
Acting Assistant Surgeon, M. H. S.,
Sanitary Inspector, Yokohama.

Surgeon-General *Marine-Hospital Service.*

[Inclosure No. 1.]

[CIRCULAR.]

Sanitary Inspector for United States,
Yokohama, Japan, November 22, 1899.

Attention is called to the following portions of the Quarantine Laws and Regulations of the United States:

"Art. V. When practicable, passengers should not ship from an infected port. Steerage passengers coming from cholera-infected districts must be detained for five days in suitable houses or barracks, located where there is no danger from infection, and all baggage disinfected as hereinafter provided; the said period of five days to begin only after the bathing of the passengers, disinfection of all their baggage and apparel, removal of all food brought with them, and isolation from others not so treated.

"Art. IX. At all foreign ports or places infected or suspected of being infected with plague, the United States Quarantine Regulations of 1894 relating to cholera shall be observed with regard to vessels and cargoes bound to the United States. Passengers and crews of said vessels who have been exposed to the infection or are liable to convey the disease shall be detained a period of not less than fifteen days from the last possible exposure to infection, under the same regulations as those relating to cholera."

All concerned are hereby notified that passengers traversing an infected district—e. g., Kobe at the present time—are considered as coming from an infected locality, and the regulations will therefore apply equally to passengers coming from the southern provinces by rail to Yokohama and those embarking on shipboard at Kobe or other infected ports in that neighborhood.

In view of the facts that Hawaii is now a part of the territory of the United States, and that its sanitary laws correspond in every respect to those of the latter country and are still in force, the foregoing will apply to passengers on ships bound only to Hawaiian ports, as well as to those on vessels touching there on the voyage to the United States.

STUART ELDRIDGE, M. D.,
Sanitary Inspector, M. H. S.

Concurred in:
K. ROKKAKU, M. D.,
Sanitary Inspector for Hawaii.
Approved:
JOHN F. GOWEY,
Consul-General of the United States.
Approved:
R. W. IRWIN,
Consul-General for Hawaii.

[Inclosure No. 2.]

[CIRCULAR.]

SANITARY INSPECTOR FOR UNITED STATES,
Yokohama, Japan, December 14, 1899.

The spreading of the infection of plague at Kobe and Osaka beyond the localities at first attacked renders necessary the strict enforcement of the regulations quoted in circular from this office of date November 22, 1899.

All steerage passengers from Hiogo Ken or Osaka Fu, or who on the way to Yokohama have passed through these districts, either by rail or steamer, must undergo a detention in Yokohama of fifteen days before sailing for United States or Hawaiian ports, and their baggage, clothing, and persons must be disinfected under the direction of this office.

To secure the enforcement of the foregoing, the passport of every such intending passenger by steerage, upon his or her arrival in Yokohama, must be presented at this office to be stamped with date of such arrival, or, if not yet in possession of passport, a card will be issued certifying to the time of reaching this port. The place of temporary residence in Yokohama of such passenger must also be recorded at this office.

No plague existing in the neighborhood of Yokohama at the present time, strict isolation of passengers subject to the above-mentioned measures is not deemed necessary, but detention and disinfection will be invariably enforced until further notice.

STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

Concurred in:
K. ROKKAKU, M. D.,
Sanitary Inspector for Hawaii.
Approved:
JOHN F. GOWEY,
Consul-General of the United States.
Approved:
R. W. IRWIN,
Consul-General for Hawaii.

BETTER ARRANGEMENTS FOR EMBARKING PASSENGERS.

As a result of the efforts upon the part of the acting assistant surgeon at Yokohama, better arrangements were effected for the detention and treatment of embarking passengers at said port, as will be shown by the following communication:

YOKOHAMA, JAPAN, *March 18, 1900.*

SIR: I have the honor to report the continued absence of epidemic quarantinable disease in Japan still with the exception of Formosa, where a few cases of plague continue persistently to appear.

The arrangement with the steamship companies recently effected, and which I report fully elsewhere, will, I trust, enable me more efficiently to carry out the laws as to treatment of passengers prior to embarkation.

Respectfully,

STUART ELDRIDGE, M. D.,
Acting Assistant Surgeon, U. S. M. H. S., Sanitary Inspector.

The SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

Arrangements for detention of passengers.

YOKOHAMA, JAPAN, *March 18, 1900.*

SIR: I have the honor to report that I have, at length, been able to arrange with the various steamship companies carrying passengers from here that they shall supply the facilities necessary for the anteembarkation treatment of dangerous passengers, required by the laws of the United States.

The companies have taken over the plant I had already established under the emergency of the outbreak of plague last winter, and it will be immediately completed and fitted to provide for detention under isolation, as well as for disinfection only.

The buildings are well adapted for the purposes required, and will probably accommodate all passengers likely to require treatment, now that the rush for Hawaii is over. Should further buildings be needed, there is ground enough for the erection of temporary or additional houses for detention.

I have not insisted upon the furnishing of a steam disinfecting plant at present for three reasons—first, that I doubted the possibility of getting it out of the companies until time shall show the advantages and necessity of the new arrangement; secondly, because such plant could not be imported or built in time to be of use in connection with the dreaded outbreak of plague within the next two months; and, thirdly, because we can obtain but a six months' lease of the present premises, though with the probability of a much longer extension.

I shall continue to use the large formaldehyd apparatus which I have recently been employing and supplement it by another, in case of breakdown or sudden pressure of work.

All expenses of every kind are assumed by the companies concerned, but the appointment of staff and the supervision of the work will be in my hands.

I go to Kobe to-morrow for the purpose of investigating the question of the shipment of rags, to get matters generally in more satisfactory form, and to endeavor to establish the same or a similar arrangement with the steamship companies there as that just made at this port.

The steerage travel from Nagasaki is practically nil, and, in the case of the outbreak of plague or cholera there, I should advise the steamship companies to refuse all natives from that port, but allowing them to go by rail to Kobe or Yokohama, there to embark, after due treatment.

I may add that, unless you disapprove, I shall hereafter disinfect all steerage passengers for United States ports, irrespective of the actual presence of the graver epidemic diseases; for dysentery, likely to be, annually, long present with us, may be a more serious danger than is generally supposed. To this routine disinfection the steamer men have agreed.

Respectfully,

STUART ELDRIDGE, M. D.,
Acting Assistant Surgeon, U. S. M. H. S., Sanitary Inspector.

The SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

Supplementing the action noted above, the following circulars were issued by the acting assistant surgeon at Yokohama:

CIRCULAR ISSUED BY SANITARY INSPECTOR RELATIVE TO PLAGUE MEASURES.

YOKOHAMA, JAPAN, *April 20, 1900.*

SIR: I have the honor to inclose herewith a copy of circular issued from this office on April 15 to steamship companies and others concerned, in connection with measures to be taken in view of the reappearance of plague at Osaka.

Respectfully,

STUART ELDRIDGE,
Acting Assistant Surgeon, U. S. M. H. S., Sanitary Inspector.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure—Circular.]

YOKOHAMA, JAPAN, *April 15, 1900.*

The reappearance of plague in Osaka requires the renewed enforcement of the regulations quoted in circular from this office dated November 22, 1899.

All steerage passengers for ports in the United States or their Territories, including Hawaii, the Philippines, and Guam, coming from Osaka Fu, or who, on the way to Yokohama, have passed through, or are suspected to have passed through said district, either by rail or steamer, unless embarked at Kobe after detention of fifteen days under the supervision of the United States sanitary inspector at that port, must have their persons, clothing, and baggage disinfected upon arrival in Yokohama, and must be detained under observation for fifteen days after the completion of such disinfection.

To secure the enforcement of the foregoing, every such intending passenger by steerage, upon his or her arrival in Yokohama, must report to the superintendent of disinfection, at the hotel of Wadashiko, Sumiyoshicho, Rokuchome, between the hours 1 and 2 p. m., when arrangements will be made for disinfection as soon as possible.

The passport, or steamer ticket, of such passenger will be stamped by the superintendent of disinfection (1) with date of completion of disinfection; (2) with that of completion of the fifteen days anteembarkation quarantine.

Should a single case of plague occur in Hiogo or other ken, outside of the Government quarantine stations, the foregoing regulations will be at once applied as concerns such district or districts.

STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

Approved:
JOHN McLEAN,
Vice-Consul-General, United States, in Charge.

CIRCULAR EXTENDING ANTEEMBARKATION QUARANTINE.

YOKOHAMA, JAPAN, *May 10, 1900.*

SIR: I have the honor to inclose herewith copy of circular issued from this office to-day, extending anteembarkation quarantine to the ken of Shidzuoka and the district between that locality and Osaka Fu.

Respectfully,

STUART ELDRIDGE, M. D.,
Acting Assistant Surgeon, U. S. M. H. S., Sanitary Inspector.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure.—Circular.]

YOKOHAMA, JAPAN, *May 10, 1900.*

Plague having appeared at Shidzuoka, the provisions of circular from this office, of date April 15, as regards the anteembarkation quarantine and disinfection of all steerage passengers from, or having passed through, infected districts, are extended to such passengers from the ken of Shidzuoka, or coming by rail from any point south of the same, or who, from any direction, have passed through said ken on their way to Yokohama.

STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

Approved:
JOHN McLEAN,
Vice-Consul-General of United States, in Charge.

REPORT FROM YOKOHAMA.

REPORT OF TRANSACTIONS AT THE PORT OF YOKOHAMA, JAPAN, DURING THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT FOR THE PERIOD FROM JULY 1 TO SEPTEMBER 15, 1900, INCLUSIVE.

OFFICE SANITARY INSPECTOR,
UNITED STATES MARINE-HOSPITAL SERVICE,
Yokohama, Japan, August 30, 1900.

SIR: In compliance with your instructions of date July 7, 1900, I have the honor to submit the following report of conditions and transactions in the district under my supervision during the period from November 1, 1899, to June 30, 1900:

The term in question has, in Japan, so far as the work of your Bureau is concerned, been rather an eventful one.

On November 15, 1899, being convinced that genuine plague had broken out epidemically in Kobe, I notified you by cable of the fact, and at the same time suggested that I be empowered to appoint a subordinate sanitary inspector at that port. Upon receipt of your favorable reply, on November 17, I at once, by telegraph, appointed the most available man, Dr. J. B. Fowler, already in Kobe, simultaneously instructing him fully by letter as to his duties as sanitary inspector and his relations to the United States consulate at his station, to which his assignment attached him.

On November 20, cases of plague were reported from Osaka also. This is a large city, some 25 miles north of Kobe, and upon the chief north-and-south railway line of the country.

Under these conditions, on November 22 and December 14, 1899, I issued to the various steamship companies trading to the United States and to Hawaii circulars calling attention to the United States quarantine laws and regulations.

The circumstances justifying the action indicated in the above were fully shown in my letter to yourself, of date December 19, 1899.

Meanwhile, Dr. Fowler, the newly appointed sanitary inspector at Kobe, had, under instructions, effected arrangements for attempting the strict isolation of passengers during the fifteen days term, as well as for the disinfection of their baggage and clothing by steam, using for the latter purpose a plant already in existence and used for the disinfection of rags, the shipment of which articles had, of course, been prohibited during the prevalence of the epidemic.

On December 24 the governor of Kanagawa Ken, the prefecture of which Yokohama is the chief city, requested me to recommend a selection from the foreign physicians of Yokohama to act in a consultant and advisory capacity with the emergency health board of Japanese medical men which had recently been formed. I, of course, complied with this request, and an organization was effected consisting of Dr. E. Wheeler (English), Dr. A. Koch (German), Dr. K. Rokkaku (Japanese, but sanitary inspector for Hawaii, and having close relations with the foreign profession of Yokohama), as interpreter and intermediary, and myself.

To this advisory board were referred for suggestions the emergency regulations already in force, as well as those the issue of which was contemplated, and which, as revised, have since been published in Public Health Reports, No. 26, of June 29, 1900.

On December 23 occurred the last known case of plague in Kobe up to the present time. But, notwithstanding the cessation of the epidemic in Kobe, I, on January 9, 1900, instructed Acting Assistant Surgeon Fowler to maintain full precautions, on account of the proximity of Osaka and the impossibility of certain discrimination between passengers from that point and those from Kobe itself, or elsewhere.

On January 21 I received from you, by cable, orders prohibiting the shipment of any articles likely to carry with them infected soil, with instructions to transmit the same to the other ports of China and Japan, which were promptly complied with. The several steamship companies doing business in Yokohama were at the same time notified of the said prohibition by the following circular:

[Circular.]

OFFICE OF SANITARY INSPECTOR FOR UNITED STATES,
Yokohama, Japan, January 21, 1900.

In accordance with instructions received by cable from Washington, the shipment to United States territory, including Hawaii and the Philippine Islands, of the following articles, from any region infected by plague, is prohibited:

Eggs packed in loam or clay.
Bulbs packed in loam or clay.
Plants or vegetables grown in infected soil.

The shipment of these articles from any port in Japan will only be permitted upon the production of satisfactory evidence of their origin and preparation outside of any area in which infection exists.

For the purposes of this circular, the occurrence of a single case of plague, or the detection of the plague bacillus in rats, in any given district, will constitute infection of that locality.

Stuart Eldridge, M. D.,
Sanitary Inspector, M. H. S.

Since the issue of the foregoing no shipment of the articles mentioned has been permitted from any infected locality or its neighborhood, and from here only after I have satisfied myself of their origin and preparation beyond the limits of any infected or suspected region, when the invoices are stamped as of articles from non-infected soil and duly signed and sealed by myself officially.

Plague ceasing to manifest itself in Osaka after January 13, 1900, on January 27 I directed Acting Assistant Surgeon Fowler to cease to require the isolation of passengers for fifteen days before embarkation, but to continue the disinfection of persons and effects, and upon the occurrence of a single new case of plague at either Kobe or Osaka, or in their neighborhood, to at once again enforce the anteembarkation quarantine.

On January 28 the following was issued to steamship companies:

[Circular.]

Office Sanitary Inspector for United States,
Yokohama, Japan, January 28, 1900.

No plague having occurred at Kobe since December 23, or at Osaka since January 13, a period of fifteen days since the last case, the detention of fifteen days recently enforced upon all steerage passengers for points in United States territory, including Hawaii, the Philippine Islands, and Guam, who have come from or passed through Hiogo Ken or Osaka Fu is discontinued.

In view, however, of the persistence of plague germs in clothing, bedding, etc., disinfection will still be enforced as regards the persons and baggage of the above class of passengers, unless such disinfection has already been carried out by the sanitary inspector of the United States or Hawaii at Kobe.

Stuart Eldridge, M. D.,
Sanitary Inspector, U. S. M. H. S.

Shipment of rags from Kobe, the only port in Japan supplying these commodities to the United States, as already said, having been prohibited during the existence of plague in that city or its neighborhood, at the end of January, in view of the apparent disappearance of plague from Japan, the merchants interested began to urge the removal of the embargo. On February 9 I referred the question to yourself by cable. As soon as possible after the receipt of your reply of February 28, leaving the matter to my discretion, I proceeded to Kobe, and after thoroughly investigating the subject, finding that proper facilities existed for the disinfection of rags by steam, and that every disposition to comply with the law in spirit as well as in letter was shown by those concerned in the business, I reported to you in full upon March 28 upon the whole matter, concluding my letter in the following terms:

"I have * * * after conference with Mr. S. S. Lyon, United States consul at Kobe, instructed Dr. Fowler, acting assistant surgeon, Marine-Hospital Service, sanitary inspector at Kobe, that the shipment of rags should be permitted under the regulations, minutely instructing as to the requirements of the law on the subject.

* * * * * * *

"After consultation with the firms engaged in shipping, it was arranged that a European superintendent of rag disinfection shall be employed, upon the nomination of the consul and with the concurrence of Dr. Fowler, who shall look after both disinfecting plants, fortunately within a few steps of each other, the same to be paid by the shippers, though under the control and supervision of Dr. Fowler. Also that no invoices of rags shall be signed by the consul until certified by Dr. Fowler as safe and having been properly treated, and, finally, that upon the first appearance of plague or cholera, or upon the occurrence of smallpox in epidemic form, all shipments of rags shall, ipso facto, immediately be suspended."

On the same date I wrote to Dr. Fowler as follows:

"SIR: After investigating the question of the shipment of rags from Japan to the United States at the present time, under special instructions from the Surgeon-General of the Marine-Hospital Service, and after due consideration of the subject, I have decided that such shipment is safe and proper if carried on under the following conditions:

"First. You are officially responsible for the condition of any given shipment of such articles from your port, and should certify to all invoices of the same, your certificate being the only warrant upon which the consul can act intelligently in the premises.

"Second. All rags shipped must, under all circumstances, be thoroughly disinfected before shipment.

"Third. As, however, it is impossible that you can be present at and personally supervise each disinfection made, it is necessary that a reliable superintendent of rag disinfection be appointed by the consul, with your concurrence, who will act under your instructions, but must be paid by the shippers.

"Fourth. The premises and plants for disinfecting rags must be such and so arranged as to afford security against the contact or mixture of disinfected and untreated lots, and the steam apparatus used should be so constructed as easily to maintain the temperature of the disinfecting chambers at 230° F. during the required period of exposure.

* * * * * * *

"Fifth. Upon the appearance of any cases of plague or cholera whatever at your port or in its neighborhood, or of smallpox in epidemic form, you will immediately suspend the shipment of rags entirely, reporting the facts to me without delay."

Early in March I received your letter of February 8, which enabled me to bring pressure to bear upon the steamship companies, and thus, from March 15, to substitute for the emergency arrangements heretofore alluded to others of a more regular and, I hope, more permanent character, the expenses of which are entirely borne and disbursed by the companies interested. Dr. Fowler was instructed to effect similar arrangements in Kobe and succeeded in doing so.

On March 31 a circular was issued to those concerned embodying the additions to the quarantine regulations, which were promulgated January 16, 1900, but had not reached me until the date first mentioned.

On April 9 ill-defined rumors of the renewed appearance of plague at Osaka being current, I telegraphed Acting Assistant Surgeon Fowler to investigate the matter. He replied April 11 that the authorities of Osaka denied the presence of plague, either of rats or men; but on the 15th of the same month I was advised of the occurrence of undoubted cases in that city. Upon the receipt of this sinister news I at once notified you by cable of this fresh outbreak and issued the subjoined circular to the steamship companies.

[Circular.]

OFFICE SANITARY INSPECTOR FOR UNITED STATES,
Yokohama, Japan, April 15, 1900.

The reappearance of plague in Osaka requires the renewed enforcement of the regulations quoted in circular from this office dated November 22, 1899.

All steerage passengers for ports in the United States or their territories, including Hawaii, the Philippines, and Guam, coming from Osaka Fu, or who, on their way to Yokohama, have passed through, or are suspected to have passed through, said district, either by rail or steamer, unless embarked at Kobe after detention of fifteen days under the supervision of the United States sanitary inspector at that port, must have their persons, clothing, and baggage disinfected upon arrival in Yokohama, and must be detained under observation for fifteen days after the completion of such disinfection.

To secure the enforcement of the foregoing every such intending passenger by steerage, upon his or her arrival in Yokohama, must report to the superintendent of disinfection, at the hotel of Wadashiko, Sumiyoshicho, Rokuchome, between the hours of 1 and 2 p. m., when arrangements will be made for disinfection as soon as possible.

The passport or steamer ticket of such passengers will be stamped by the superintendent of disinfection, first, with date of completion of disinfection; second, with that of completion of the fifteen days ante-embarkation quarantine.

Should a single case of plague occur in Hiogo or other ken, outside of the Government quarantine stations, the foregoing regulations will be at once applied as concerns such district or districts.

STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

Dr. Fowler was, on the same date, instructed to enforce the quarantine of fifteen days before embarkation, to prohibit the purchase of rags, and to permit the shipment of those already warehoused only under special precautions.

Plague having extended from Osaka to the ken of Shidzuoka, upon the trunk railway from Kobe and Osaka to Yokohama and Tokyo, the following circular was promptly issued.

[Circular.]

OFFICE SANITARY INSPECTOR FOR UNITED STATES,
Yokohama, Japan, May 10, 1900.

Plague having appeared at Shidzuoka, the provisions of circular from this office of date April 15, as regards the ante-embarkation quarantine and disinfection of all steerage passengers from or having passed through infected districts, are extended to such passengers from the ken of Shidzuoka or coming by rail from any point south of the same, or who, from any direction, have passed through said ken on their way to Yokohama.

STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

All the precautions outlined in the foregoing notifications have been maintained in due force, and, I think, carefully and honestly carried out up to the termination of the period covered by this report, viz, June 30, 1900.

From November 1, 1899, to June 30, 1900, I have inspected 133 ships, or an average of one every forty-three and one-half hours, of which 21 were sailing vessels and 122 steamers, 83 of the latter carrying passengers. I have minutely examined 35,658 steerage passengers in transit or embarking here, including those destined for way ports, such as Honolulu and Victoria, as well as those for points in the United States proper, and inspected crews to the number of 10,547, giving, as the total of persons inspected, 46,205.

I have vaccinated 3,808 persons, mostly steerage passengers upon ships carrying an incompetent surgeon, or none, and have enjoined the vaccination of a much larger number, under circumstances where I thought the medical officers of the vessel could be relied upon.

After the establishment of a disinfecting plant, viz, from December 14, 1899, to June 30, I disinfected 8,652 pieces of baggage, and, including these, during the eight months covered by this report inspected in all 14,032 packages of effects.

On December 12 I removed from steamship *Gaelic* a case of measles, the contaminated quarters being then disinfected by the surgeon of the ship, under my supervision.

On May 15 at inspection I detected among the Chinese passengers of steamship *China* two cases of mild variola, and at once sent the ship to the Japanese quarantine station for disinfection, a process which was very thoroughly carried out, the ship being liberated, with my consent, two days later.

May 28, when inspecting the numerous passengers from Kobe upon steamship *Duke of Fife*, I found a case somewhat suggesting early plague, and, isolating the patient, with the full consent of the agents of the line, detained the ship for twenty-four hours to allow of clearer diagnosis. Happily, at the end of this time the case proved of noninfectious character, and the ship proceeded upon her voyage.

In addition to the above I have refused embarkation to several cases of leprosy and one of beriberi.

The equipment of my station is simple and not altogether satisfactory. It consists of one large Lingner glycoformal apparatus and one smaller formaldehyde generator, with 200 cotton kimonos (or Japanese dressing gowns), for use while disinfecting the clothing and effects of emigrants. All of these articles are my private property and have been loaned to the steamship companies for use in their disinfecting depot.

As regards my means for boarding vessels, I am dependent upon the good nature of the agents of the various lines of steamers or the consignees of outside vessels, who generally send me off at the hour appointed for inspection. Should their complaisance fail or, as happens occasionally in the case of sailing ships which are compelled to anchor far outside of the harbor, the captain be the person with whom I must deal, I have to hire a launch at my own expense, under your decision of September 22, 1896.

I have but one employee, an interpreter, Mr. K. Toyoda, paid from my own pocket from the date of my own original appointment until May 1, 1900, when his compensation at the rate of $1.50 per diem when actually employed was assumed by the Bureau at my request. The duties of this interpreter are to visit with me ships carrying Japanese passengers, who often speak a local patois or dialect incomprehensible to myself, to assist me in any dealings with the Japanese officials requiring translation of documents or letters and, incidentally, to inquire on behalf of the consulate into the status as regards contracts for labor of any suspicious emigrants met with during my inspection.

During the brief period of the operation of my emergency arrangement for the disinfection of passengers, I employed also a European as superintendent of disinfection, with the necessary staff of laborers.

In my report of last year I fully described my methods of inspection on shipboard, which are, of course, adapted to the special conditions arising from the continued presence of plague in the Orient and which have not been changed.

The disinfection of baggage is performed as follows: In a tight room of 2,000 cubic feet contents, the various packages of luggage, generally native baskets, are opened up, and their contents, with the baskets themselves, distributed upon racks occupying the greater portion of the chamber. The clothing removed from the persons of the passengers on entering their bath is at the same time hung upon the racks and the whole exposed to the action of the formaldehyde generated by the Lingner apparatus for a period of at least four hours, generally more.

As my apparatus is calculated to act efficiently in three hours for a space of 2,800 cubic feet, this process should be as effectual as any save that by steam.

When those undergoing disinfection emerge from the bath they don disinfected garments belonging to the station, retaining these until their treated clothing is returned to them.

As concerns the taking of precautions for the prevention of the reinfection of baggage en route, I have been unable to devise such. The people with whom I am dealing have but few effects, these of a character necessary to ordinary cleanliness during the voyage, and so far as I can see any sealing up or sequestration of their baggage on the journey would certainly do harm in one direction while guarding against a problematical danger in another.

So far as I am informed, there has been, with the important exception of plague and dysentery, no occurrence of any epidemic disease of a serious nature in this Empire within the limits of time to which this report is confined. As regards dysentery, I am glad to be able to state that the epidemic of the present summer is so far much less extensive than those of the last few corresponding seasons, although, of course, its increase is to be anticipated during the hotter months.

A brief résumé of the history and characteristics of the recent outbreak of plague in Japan may be of interest, the more so as it is the first known instance of the occurrence of this disease in the country beyond the limits of the quarantine stations.

On November 5, 1899, a man who had left Formosa through the port of Kelung on October 30, died of plague at Hiroshima, a port of southern Japan. His case, however, was followed by no others and has no apparent connection with the outbreak of the disease at Kobe, which took place about November 6, when the first recognized case was attacked, dying on the 8th. Later investigation showed, however, that at least two cases, which were almost certainly of plague, had occurred on November 3 and 4, were mistakenly diagnosed, and, proving fatal, the bodies had been cremated as usual among Japanese Buddhists.

In all, from the beginning of the epidemic in Kobe until its cessation on December 23, 1899, forty days later, 23 people were attacked, of whom 4 recovered.

With few exceptions the cases were confined to a very poor and crowded section of the city, and in most of the exceptions the infection was directly traced to this focus of disease.

At the outbreak of the epidemic the infection was ascribed to importation in cotton or perhaps rice, which formed a part of the sweepings of a steamer trading between Bombay and Japan via Hongkong, and this was, as shown by later careful investigation, almost certainly the manner in which the germs were introduced. The fact that for some two months preceding the recognition of the presence of plague there had been an unusual mortality in the district in which it first manifested itself, ascribed to diseases which could, conceivably, be confounded with pest, led for a time to the supposition that plague had been more or less prevalent before its detection. This idea was afterwards proved erroneous by most painstaking investigation of the history of the suspected cases.

All the earlier cases in Kobe occurred in people who had in some way been connected with the handling or disposition of the ship's sweepings above alluded to. These sweepings are a regular trade commodity, the marketable portions, rags, bones, cotton, iron scraps, etc., being sorted out and disposed of where wanted, the refuse burned or thrown into the sea at a distance from the shore. Cotton scraps, presumably from Bombay, appear to have been the most active agent of infection, but in at least one case rice from the sweepings seems to have conveyed the disease to the person of a girl whose duty it was to feed it to fowls.

The indictment as against this ship refuse would be absolutely clear and direct were it not for the fact that at the time of the Kobe epidemic a number of rats, dead from plague, were found in and in the neighborhood of the custom-house and piers, as well as in the plague district proper. It is true that the first demonstration of plague in rodents was made on November 19 only, but it is stated that prior to this a considerable number of dead rats had been found in the same localities which were not examined.

The sanitary authorities used the most rigid methods for combatting the epidemic during its prevalence, and the ablest experts in Japan, with Professor Kitasato at their head, were dispatched to Kobe immediately after the detection of the earlier cases. That the means employed were successful in great degree was shown by the limitation of the disease to so small a number of the people and by the fact that so far there has been no recurrence of the malady in Kobe. It may be that this apparently absolute eradication of the malady in Kobe is to be chiefly ascribed to the intentional destruction by fire of the district of the city most affected, which was carried out some time after the disease had ceased to appear.

The form of the disease in Kobe was invariably bubonic, and death ensued after a period varying between twenty hours and sixteen days, the average duration of illness being about five days.

In Osaka, a city of 750,000 inhabitants within about 25 miles of Kobe, and a large manufacturing and commercial center, the first recognized case of plague occurred on November 18, proving fatal two days later. The mode of infection in this instance has not been clearly traced, but it is supposed with reason that the victim had come in contact with a certain family of which a few days later three members were attacked by plague. As regards the family just mentioned it was shown that a mixed lot of old and new cotton was stored in a warehouse immediately in the rear of their residence and that this cotton actually contained the bacilli of plague. Confirmatory evidence of the agency of cotton in transmitting the disease was obtained by the finding of three rats dead from pest among similar cotton in a closely neighboring warehouse, as well as by the fact that of the later cases several occurred among employees of cotton mills. From November 18 to January 11 there were 41 cases of pest in Osaka, of which 39 were fatal. The disease ceased to manifest itself at the latter date mentioned. The type of the malady from November 18 to December 26 was bubonic, and succeeding attacks were about equally divided between the bubonic and pneumonic forms. Of the latter there were 13 cases, all fatal, and the excessive contagiousness of this variety of pest was painfully illustrated by the infection of three of the physicians engaged in attending or inspecting the very small number of cases of plague pneumonia, who all, with their wives and the mother of one of them, fell victims to the pestilence. A jinricksha man employed by one of these physicians also died of the disease.

Of the subsequent reappearance of plague in Osaka, which, beginning in that city about April 8, extended later to Shidzuoka Ken and was still present in both localities on June 30, the latest date covered by this report, I am unable as yet to give details. It appears, however, to be confined to the bubonic form and can scarcely be said to be widely prevalent, as up to the 30th of June but 49 cases had occurred in Osaka and its environments and 18 cases in all at several points in Shidzuoka Ken.

All praise is due to the sanitary officers and local medical profession of Japan for the intelligent, brave, energetic, and, on the whole, successful manner in which they have met the onslaught of the insidious pestilence. The methods used may be briefly given as isolation of the sick, suspects, and exposed; cremation of the dead; disinfection, or, more often, destruction, of effects; house to house visitation and inspection, not only in affected districts, but outside of these and in places in which no plague has existed; extermination of rats, so far as possible, by traps and poison; and, to a limited extent, the use of Yersin's and Haffkine's protective serum. The experience in the use of prophylactic treatment upon a very limited scale and in an epidemic so small and controlled is, of course, of little value as a test. Professor Kitasato prepared and used upon a few people a protective on the lines of the dysentery serum of Shiga, i. e., by the use of the actual baccili of pest, killed by exposure for a time to a temperature of 60° C., mixed with serum from an immunized animal. Here, again, no results of a definite character can be said to have been attained beyond the demonstration of the harmlessness of such inoculations.

I wish here to express my obligations to Professor Kitasato for his uniformly courteous compliance with my requests for information and specimens, and also for his admirable sketch of the Kobe epidemic and first outbreak at Osaka, given in his recently published "Bericht über die Pestepidemie in Kobe und Osaka, von November, 1899, bis Januar, 1900." Tokyo, Home Department, 1900.

I am, sir, very respectfully, your obedient servant,

STUART ELDRIDGE,
Acting Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

YOKOHAMA, JAPAN, *September 25, 1900.*

SIR: In accordance with instructions from your office, dated July 7, 1900, I have the honor to submit the following report of conditions and transactions in the district under my supervision for the period July 1 to September 15, 1900:

On July 16 occurred the last case of the second outbreak of plague in Osaka, which began about April 10.

On August 15 a case of plague was detected upon the steamship *Coptic*, outward bound from San Francisco to Hongkong, via Honolulu, Yokohama, and the Japanese and Chinese ports south of the last-named place, upon the arrival of the ship at Kobe. This case, which presented both bubonic and pneumonic symptoms, proved fatal on the 18th, and the ship was duly quarantined for ten days from the completion of the process of disinfection, resuming her voyage on the 28th. The interesting point of this case relates to the probable source of infection. No plague had been present in Honolulu, where the victim, a Chinese steerage passenger, embarked, for several months before the arrival of the ship at that port, nor has there as yet been a single instance of the disease in Yokohama. It seems credible, therefore, that the bacilli were contained in effects, perhaps packed during the prevalence of the plague in Honolulu, and which were opened or worn during the voyage. No second case had appeared upon the ship up to the time of her arrival here on the return voyage, September 13.

August 20 the routine disinfection of steerage passengers at Yokohama, which, begun with the first epidemic appearance of plague at Kobe in November, 1899, had been since steadily maintained, was discontinued upon the urgency of the steamship companies concerned, I consenting in view of the facts that no case of plague had occurred in Japan for over one month, that no other infectious quarantinable disease was prevalent, and that emigration of the lower or laboring classes was, as it still is, practically prohibited by the Japanese Government. The shipping companies were, however, formally notified at this time that, should any quarantinable disease manifest itself epidemically, the precautions required will be again strictly carried into effect, and that, in such a case, they must supply the necessary buildings and equipment.

On September 11 plague was again detected in Osaka, and from the 11th to the 14th there were 8 cases, all fatal. On the 15th, when the presence of the malady as an epidemic was first made known, I cabled you at once. On the same date I issued to the steamship companies, through their agents, the following notification, which I trust they will speedily act upon:

YOKOHAMA, JAPAN, *September 15, 1900.*

TO AGENTS OF STEAMSHIP COMPANIES:

The renewed outbreak of plague in Osaka demands the immediate enforcement of the precautions outlined in circular from this office of date April 15, 1900.

As the former disinfection depot has been broken up, I would suggest that you, without delay, arrange with your colleagues in the steamship business for its reestablishment at once, upon the same general lines as before. I believe that the premises formerly occupied are still available.

I would remind you that I am instructed to refuse bills of health to any ship carrying passengers who have not been submitted to the treatment prescribed by the United States Quarantine Regulations.

Respectfully,

STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

From July 1 to September 15 I inspected 49 vessels, of which 7 were sailing ships and 42 steamers, 25 of the latter carrying steerage passengers; or an average of one ship visited for inspection every thirty-seven and one-half hours. The total number of steerage passengers examined was 2,705, and of crews, 3,825, or, in all, 6,530 persons inspected.

During the same period 342 pieces of baggage were disinfected, and, including these, 464 inspected.

As smallpox has not been present either in Yokohama or on board of any ship inspected during the term covered by this report, in compliance with the regulations of January 16, 1900, no vaccinations have been performed.

The measures taken by the Japanese Government for restricting the extension of plague have undoubtedly been exceedingly successful. Conditions among the lower classes in Japan, and in the crowded slums of a city like Osaka, which has long been regarded as a most unhygienic locality, are so favorable to the propagation of any filth born or nurtured malady that the limitation of the disease to a very small number of people must be regarded as a most brilliant example of the effectiveness of modern scientific methods.

With regard to the actual extirpation of the germs of the pestilence, though every means known to sanitarians has been employed for this purpose, and with apparent success so far as Kobe is concerned, the results, on the whole, are not reassuring. It is true that in Osaka the disease ceased to appear from January 11 until April 8 or 10 of this year, but then, breaking out again, it continued until July 16, when it again became dormant until September 11.

Now, independently of the well-recognized peculiarity of the epidemicity of pest, in exhibiting periods of amelioration or cessation, followed by aggravation, not always with apparent cause, it may be stated that in the case of Osaka the first interval of freedom from cases after the primary outbreak coincided almost exactly with the onset of the colder weather of the winter, while, again, the term of abeyance, from July 16 to September 11, corresponded to the hottest and at the same time least humid summer known in Japan for many years. Such seasonal periodicity is, of course, within limits, to be expected in the case of a disease of which the history seems to demonstrate its decided predilection for the more temperate seasons, which will probably be often manifested, irrespective of any measures employed to combat the epidemic.

Researches in Japan strongly support the growing tendency to consider the rat the most important agency in the maintenance and distribution of the pest bacillus, if not the original source of epidemics of plague among men.

Of course, this fact, if it be a fact, renders the extinction of the disease more difficult of achievement than if it were a malady of men only, or of men and of animals less widely distributed, furtive, and cunning than Mus decumanus.

In Osaka, particularly, in attempting upon a large scale the destruction of the rats a serious obstacle was encountered, chiefly in the quarters inhabited by the better class of traders, in the superstition of the latter, which connects their own material prosperity with the presence of rats about the premises. Whether this superstition is a growth of the period, not very remote, when, in Japan, rice in kind constituted the greater portion of the currency and most of the stored wealth of the people, and numerous rats implied full warehouses, I can not say, but it seems probable that such is the case. This well-rooted belief will certainly go far in counteracting the attempts of the sanitary authorities to reduce the number of rodent vermin.

Respectfully,

STUART ELDRIDGE,
Acting Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

ACTION REGARDING FOOD PRODUCTS FROM JAPAN.

The Bureau's attention being invited to the fact that large quantities of food products were being imported from Japan to the United

States which might involve the danger of transmission of plague, the following telegram was addressed to the acting assistant surgeon, Yokohama:

WASHINGTON, *January 19, 1900.*

ELDRIDGE, *Yokohama:*

Eggs packed in and vegetables from infected soil forbidden. Notify Kobe, Hongkong, Amoy.

WYMAN.

In reply to the above telegram the following communications were received:

YOKOHAMA, JAPAN, *January 25, 1900.*

SIR: I have the honor to inclose herewith copy of circular to shipping companies issued by me in accordance with your cablegram of the 20th instant.

Respectfully,

STUART ELDRIDGE, M. D.,
Acting Assistant Surgeon, U. S. M. H. S., Sanitary Inspector.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure—Circular.]

YOKOHAMA, *January 21, 1900.*

SIR: In accordance with instructions received by cable from Washington, the shipment to United States territory, including Hawaii and the Philippine Islands, of the following articles from any region affected by plague is prohibited:

Eggs packed in loam or clay.
Bulbs packed in loam or clay.
Plants or vegetables grown in infected soil.

The shipment of these articles from any port in Japan will only be permitted upon the production of satisfactory evidence of their origin and preparation outside of any area in which infection exists.

For the purposes of this circular, the occurrence of a single case of plague, or the detection of the plague bacillus in rats, in any given district, will constitute infection of that locality.

STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

Approved:
J. F. GOWEY,
Consul-General of United States.

A true copy:
STUART ELDRIDGE, M. D.,
Acting Assistant Surgeon, U. S. M. H. S.

YOKOHAMA, JAPAN, *January 25, 1900.*

SIR: I have the honor to acknowledge the receipt, on the evening of its dispatch, of your cablegram of the 20th instant, as follows: "Eggs packed in and vegetables from infected soil forbidden. Notify Hongkong, Amoy, and Kobe," and to report that, in accordance therewith, I immediately telegraphed Passed Assistant Surgeon Perry, at Hongkong; A. B. Johnson, United States consul at Amoy, and Acting Asst. Surg. J. B. Fowler, at Kobe, and, in addition to J. W. Davidson, United States consul at Tamsui, Formosa, and C. B. Harris, United States consul at Nagasaki, the two officials last mentioned belonging to the district of this consulate-general, and Tamsui, in particular, being a point of danger on account of the existence of plague there, and the frequent shipment from that port of cycads and other plants.

Respectfully,

STUART ELDRIDGE, M. D.,
Acting Assistant Surgeon, U. S. M. H. S., Sanitary Inspector.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

REPORT ON EPIDEMIC DYSENTERY IN JAPAN FOR THE PAST TWENTY YEARS.

A valuable report on epidemic dysentery in Japan by Acting Assistant Surgeon Eldridge, mentioned in the annual report for 1899 as being in course of preparation, was completed during the year and published in the Public Health Reports of January 5, 1900, with illustrations.

APPOINTMENT OF ACTING ASSISTANT SURGEON AT THE PORT OF KOBE, JAPAN.

On November 15, 1899, the acting assistant surgeon at Yokohama telegraphed the Bureau that plague was present in Kobe in epidemic form, and recommended the appointment of a medical officer at said port. This was authorized November 16, 1899, and Dr. J. B. Fowler was appointed acting assistant surgeon for service in the office of the United States consul at Kobe, to date from November 19, 1899.

At the request of the medical officer in command, Honolulu, the acting assistant surgeon at Kobe was instructed to furnish said officer a statement relative to the prevalence of bubonic plague existing at Kobe, which statement was to accompany each steamer leaving Kobe for Honolulu.

REPORTS OF THE OUTBREAK OF PLAGUE IN KOBE.

KOBE, JAPAN, *August 25, 1900.*

SIR: Whence the plague was brought into Japan has not been decided, one version being that it was brought from Formosa by a Japanese cooly who landed at Moji, the entrance to the inland sea, and died there; another, that it came in a cargo of cotton from Bombay to Kobe.

The first case of plague, officially notified as such, occurred in Kobe on November 2, 1899. Great precautions were taken to check its spreading, and vigorous measures of sanitation and isolation were enforced by the Japanese officials and well responded to by the people, with the gratifying result that it was stamped out in Kobe by December 22, 1899, during which time 23 cases and 19 deaths were officially reported.

But meanwhile it had appeared in Osaka, the first case being reported on November 18, 1899.

Osaka is an immense town that lends itself to any epidemic of disease, due to its position on flat ground, its structure, houses built on the sides of innumerable canals which intersect the city in every direction, and its want of sanitation.

The authorities in Osaka also took vigorous measures against the disease, and for the time stamped it out on January 12, 1900, during which time 42 cases and 40 deaths were officially reported.

Then came an interval of immunity from plague, lasting for eleven weeks, when, on April 3, 1900, it broke out again, this time in Osaka.

This second outbreak spread over a large area, going as far north as Shidzuoka Ken, but not again touching Kobe.

Due to the extraordinary efforts of the authorities, police, and people themselves, it was finally checked and stamped out for a second time on June 30, 1900. The methods adopted by the authorities in Japan to check and prevent the spread, etc., of plague are given in my report of May 31, 1900.

SMALLPOX.

Except for an isolated case or two, smallpox has been absent for these last eight months in this district.

I am, sir, respectfully,

J. BUCKNILL FOWLER,
Acting Assistant Surgeon, Marine-Hospital Service, U. S. A.

SURGEON-GENERAL U. S. MARINE-HOSPITAL SERVICE.

REPORT FROM KOBE.

REPORT OF TRANSACTIONS AT THE PORT OF KOBE, JAPAN, FOR THE FISCAL YEAR ENDED JUNE 30, 1900; ALSO SUPPLEMENTAL REPORT FOR PERIOD FROM JULY 1, 1900, TO SEPTEMBER 15, 1900, INCLUSIVE.

OFFICE SANITARY INSPECTOR,
U. S. MARINE-HOSPITAL SERVICE,
Kobe, Japan, August 25, 1900.

SIR: I have the honor to send in my report of the transactions at the port of Kobe covering the period from November 1, 1899, to and including June 30, 1900.

I. The number of vessels bound for the United States, either calling at Kobe en route or sailing direct from Kobe, amounted to 136. Of these, 35 took original bills of health, the rest supplemental.

Vessels bound to—	
San Francisco	34
Manila	23
Tacoma	21
New York	18
Portland, Oreg	14
Seattle	12
San Diego	10
Port Townsend	3
Puget Sound	1
Total	136
Sailing ships	16

II. The total number of emigrants and third-class passengers examined amounted to 12,736; of these 4,921 were vaccinated before leaving.

III. All crews of the vessels were inspected, but no list of the numbers was kept.

IV. All vessels bound for the United States are boarded and inspected by me shortly before the vessel sails, the crews, steerage passengers, and emigrants inspected, and the tickets of the latter seen to be correct.

V. I use my own steam launch for boarding the said vessels.

VI. All steerage passengers and emigrants whose port of departure is Kobe are also thoroughly examined by myself the day before or the morning the vessel sails, at the houses of the two largest Japanese emigration companies, where, on their fitness being determined, their tickets are collected and taken to the United States consulate and are there officially stamped and then distributed to the emigrants on board ship, where they go through the usual inspection mentioned in Paragraph IV just before departure.

VII. Baggage belonging to emigrants and steerage passengers until February 1, 1900, was subjected to sulphur fumigation; after that date it was subjected to steam pressure in a small chamber obtained from the Japanese authorities that had been used by them for the disinfection of clothes at one of their hospitals. This being found a slow process and not altogether satisfactory for a large amount of baggage, the present plant was obtained and used on April 13 up to the present time.

VIII. *Present method of disinfection of baggage by steam.*—Temperature of steam at 4 atmospheres (14.6 pounds) equals 145.5° C. and 293.9° F. Boiler pressure equals 60 pounds.

THE APPLICATION OF THE STEAM.

There is an arched brick chamber having two iron doors, furnished with eight 4-inch steam pipes on either side wall, on which the full boiler pressure is left all the time. A second independent steam pipe passes below the trays on which the baggage is spread out during disinfection, one on either side of the chamber, diameter 2 inches, and perforated with one-eighth inch holes about 6 inches apart. These two pipes admit live steam of a temperature 293° F., which passes up through the baggage, driving the air out of the chamber through three 1-inch openings at a line where the arched brick roof of the chamber meets the side walls.

This live steam is admitted to the chamber for thirty minutes, when the valves are closed, the steam remaining on the large closed iron pipes above mentioned all the time.

The brick chamber is 12 feet wide, 30 feet long, 10 feet high in the center. It is furnished with two iron discharging doors, one at either end, which are packed and held by means of screw bolts. A pressure gauge is attached to the pipes at the chamber as well as on the boiler. The chamber is always heated up before disinfection is commenced, resulting in a minimum condensation of steam on the walls and on the baggage, the moisture passing out with the air as it is displaced by the steam.

Time of disinfection, forty minutes from the time the doors are closed until opened. Live steam left on thirty minutes. Steam coils on side walls keep the chamber hot, dry out the baggage when the live steam is closed off, and heat the air and baggage while the latter is being spread out on the racks. These racks are 9 and 18 inches apart, admitting different sizes of packages. Ninety-nine per cent of Japanese baggage consists of telescoped willow bags tied by means of rope.

The contents of these bags are divided between each half, which are labeled and kept together and placed on the racks, which extend on each side of the chamber, the center being open for a passageway between the doors.

Leather articles are disinfected with bichloride of mercury solution, 1 in 1,000.

Blankets are spread out.

The bags being of open straw work, the steam readily passes through the contents of the bags.

The number of pieces of baggage disinfected in this way was 4,082.

Dr. Boyer has been authorized by Mr. Lyon, United States consul here, and by myself to act as inspector of the baggage fumigation.

The baggage is taken from the Japanese boarding house by coolies, employed and under the supervision of Dr. Boyer, to the disinfecting chamber the day before the vessel's departure. There, after undergoing the steam disinfection, it is stamped and then placed on board the steamer.

Respectfully,

J. B. Fowler,
Acting Assistant Surgeon, M. H. S.

Report of Maritime Quarantine Service at Kobe, from June 30 to September 15, 1900.

Kobe, Japan, *September 30, 1900.*

Sir: I have the honor to send in my supplemental report for the period from June 30 to and including September 15, 1900.

The number of vessels bound for the United States of America from Kobe was 33, 3 of these being sailing ships, while 9 left Kobe for Manila. Their various destinations are as follows: Fourteen to San Francisco via Honolulu, 7 to New York (1 sailing ship), 3 to Tacoma, 3 to Seattle, 2 to Portland, Oreg., 2 to San Diego via Honolulu, 2 to Port Townsend (sailing ships), 9 to Manila; total, 42.

The nationalities were: British, 22; American, 7; Japanese, 7; German, 4; Norwegian, 2.

The hospital ship *Relief* came up from Nagasaki and remained in harbor here for a few days before returning to Nagasaki and Taku.

Two United States transports likewise came in to land their horses for a run ashore for some days before proceeding on to Manila.

The number of emigrants and steerage passengers taken on here and examined was 304. The number of Chinese steerage in transit from Hongkong examined was 830.

Another recurrence of plague occurred in Osaka on September 8, when 2 cases were discovered, after the city had been free from the disease for seventy days. Fourteen cases and 8 deaths were officially notified up to September 15. All the usual precautions were at once taken and continue to be carried out.

This district has been remarkably free from cholera this year, 1 case and 1 death being notified in July and 2 cases in August.

The Occidental and Oriental Steamship Company's steamer *Coptic* was placed in quarantine by the Japanese authorities on August 16, when on her voyage to Hongkong.

A Chinese rice farmer living 14 miles from Honolulu was taken on board as a steerage passenger on August 2 at Honolulu. On the steamer's arrival at Kobe, on August 15, he was found to be suffering from high temperature, buboes, and slight pulmonary trouble. The quarantine officers removed him from the ship and found the bacilli of plague in his sputa. The Chinaman died in the hospital on August 19, and was immediately cremated. The ship and contents were placed in quarantine for ten days. Baths were given on shore to each individual, both passengers and crew, sulphur burned throughout the ship, and decks, floor, and ceilings washed down with carbolic acid.

On cleaning steerage deck where this Chinaman had been living three dead rats were found, recently dead, which, on being examined on shore, were said to be infected with the plague bacilli.

No other case of illness occurred on board the ship during her voyage or while she was lying for the ten days in quarantine.

Respectfully,

J. Bucknill Fowler,
Acting Assistant Surgeon, U. S. M. H. S.

Surgeon-General Marine-Hospital Service.

CHINA.

HONGKONG.

P. A. Surg. J. C. Perry was on duty in the office of the United States consul-general at Hongkong, China, until January 17, 1900, when he was ordered to Manila, P. I., his place being taken by an acting assistant surgeon. Asst. Surg. John W. Kerr was then ordered to relieve the acting assistant surgeon at Hongkong.

HISTORY OF PLAGUE EPIDEMICS IN HONGKONG.

A brief history of the plague epidemics in Hongkong, China, during 1894, 1896, 1898, and 1899 was forwarded by Dr. Perry and published in the Public Health Reports No. 8, of February 23, 1900, page 377.

REPORT OF TRANSACTIONS AT THE PORT OF HONGKONG, CHINA, FROM NOVEMBER 18, 1899, TO OCTOBER 13, 1900, INCLUSIVE.

OFFICE CHIEF QUARANTINE OFFICER FOR PHILIPPINE ISLANDS,
MARINE-HOSPITAL SERVICE,
Manila, P. I., February 13, 1901.

SIR: I have the honor to hereby submit report of the quarantine transactions at Hongkong from November 18, 1899, to October 13, 1900. This covers the work performed during the latter period of my duty there, November 18, 1899, to January 8, 1900, and that of Acting Asst. Surg. G. W. Jordan from the latter date until relieved by Asst. Surg. J. W. Kerr on October 13, 1900.

The negotiations with the Pacific Mail Steamship Company relative to allowing other companies the privilege of using their disinfecting plant for the treatment of passengers and their baggage sailing on their vessels for United States and Philippine ports resulted in satisfactory arrangements being made by which this plant was rendered available for this purpose, and this additional work was commenced on January 15, 1900.

This increase in work naturally taxed this plant to its utmost capacity, but I believe that, as a rule, the work was satisfactorily done and was an important advancement, as before it had been impossible to bathe the passengers or disinfect their baggage and clothing, sailing for other United States ports than San Francisco, and absolutely no means had existed for so treating the crew and steerage passengers for Philippine ports either at Hongkong, the port of departure, or at Manila, or at other ports in the Philippine Islands.

The work at Hongkong is of paramount importance, and the necessity of keeping medical officers on duty at this port can not be too strongly emphasized. The work is increasing and is too severe a tax on one medical officer. A competent assistant should be detailed to supervise the disinfection.

It has been deemed best to submit the data in the tabulated form below, and although in this case the available data has not been complete, still the report is correct relative to the number of ships inspected, the number of crew and passengers examined, bathed, and disinfected, but does not show accurately the number of pieces of baggage disinfected, as this data for other ships than those going to San Francisco could not be found. The amount of baggage disinfected in January and February can not be given for the same cause, but would be approximately that of the succeeding month.

It is difficult to estimate the amount of baggage carried by the steamers sailing from Hongkong to Portland, Seattle, and Tacoma with no records at hand, but it would be approximately an additional 8 per cent of that given. The baggage to Philippine ports was small in amount, since no Chinese steerage passengers were brought to these ports from May 1 to October 1, 1900.

This report shows concisely the amount of important work done in Hongkong.

Report of inspection and disinfection work at Hongkong.

Month.	Vessels.	Crew.	Passengers.		Rejected.	Total crew bathed.	Steerage passengers bathed.	Pieces baggage disinfected.
			Cabin.	Steerage.				
1899.	*Number.*	*Number.*	*Number.*	*Number.*	*Number.*	*Number.*	*Number.*	*Number.*
November 18–30	12	838	112	507	15	100	336	240
December	30	2,107	319	850	18	200	634	385
1900.								
January	35	2,485	261	611	13	304	456	(a)
February	34	2,303	173	683	6	248	283	(a)
March	46	2,680	324	2,260	0	485	1,284	2,644
April	39	1,986	329	1,941	41	690	2,104	3,834
May	42	3,123	324	2,267	41	1,345	1,793	3,161
June	32	1,974	305	1,141	67	1,461	984	1,460
July	34	1,934	287	1,060	16	1,750	1,094	1,760
August	40	1,947	283	572	12	1,762	623	848
September	37	2,128	194	953	8	1,759	460	1,225
October 1–13	12	725	62	304	5	816	422	630
Total	393	24,230	2,973	13,149	242	10,920	10,473	16,187

[a] No data available.

Respectfully,

J. C. Perry,
Passed Assistant Surgeon, U. S. M. H. S.

Surgeon-General Marine-Hospital Service.

Europe.

DETAIL OF OFFICERS AT EUROPEAN PORTS TO INSPECT EMIGRANTS LEAVING FOR THE UNITED STATES.

On November 22, 1899, authority was requested of the honorable the Secretary of the Treasury to detail medical officers of the Marine-Hospital Service to serve in the offices of the United States consuls at the various ports of Europe where emigrants embark for the United States. This request was made because, at the time stated, plague existed in Oporto, Portugal, and one case had been reported in Lisbon. There were rumors of cases in Spain and France. Plague had also been reported in Trieste, Austria, and in Kolobovka, Russia. Plague had also been found upon one or two ships arriving at English ports, and the possibility of its transmission across the Atlantic was demonstrated by its discovery in Asuncion, Paraguay, and Santos, Brazil.

One officer was already serving in the office of the United States consul at Naples, Italy, and two others had been assigned to the office of the United States consul-general at Barcelona, Spain, and of the United States consul at Cadiz, Spain, respectively.

The request being approved, the following details were made:

Surg. G. M. Magruder, London, England.
P. A. Surg. A. C. Smith, Hamburg, Germany.
P. A. Surg. Rupert Blue, Genoa, Italy.
P. A. Surg. J. H. Oakley, Queenstown, Ireland.
P. A. Surg. E. K. Sprague, Antwerp, Belgium.
P. A. Surg. A. R. Thomas, Rotterdam, Netherlands.
P. A. Surg. H. W. Wickes, Glasgow, Scotland.
P. A. Surg. J. B. Greene, Bremen, Germany.
Asst. Surg. H. S. Mathewson, Liverpool, England.
Asst. Surg. S. B. Grubbs, Havre, France.
Asst. Surg. W. C. Hobdy, Southampton, England.
Asst. Surg. G. M. Corput, Marseille, France.

Orders similar to the following were issued to each of the officers detailed for foreign duty.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL,
MARINE-HOSPITAL SERVICE,
Washington, D. C., December 2, 1899.

SIR: You are directed to proceed to New York, N. Y., en route to Hamburg, Germany, and report to Surg. L. L. Williams at the immigration depot for the purpose of familiarizing yourself with the medical inspection of immigrants as practiced in New York.

Further orders will be issued regarding the date of your departure for Germany.

Respectfully,

WALTER WYMAN,
Surgeon-General, M. H. S.

P. A. Surg. A. C. SMITH,
U. S. Marine-Hospital Service, Washington, D. C.

LETTER OF INSTRUCTIONS.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL,
MARINE-HOSPITAL SERVICE,
Washington, D. C., December 2, 1899.

SIR: I inclose herewith copy of a letter bearing the approval of the President, under date of November 22, 1899, in accordance with which you are detailed, under the provisions of section 2 of an act granting additional powers and imposing additional duties upon the Marine-Hospital Service, approved February 15, 1893, for duty in the office of the United States consul at Hamburg, Germany, and are directed to proceed to that port on or about December 9, 1899, after completing your service in the observation of immigration work at New York, which will form the subject of a separate order.

Your duties will be to enforce the quarantine laws and regulations of the Treasury Department, which are provided to be observed at foreign ports by vessels bound for the United States; to advise with the consul on sanitary matters; to furnish information to the Bureau regarding the prevalence of epidemic disease, and, in conjunction with the consul, to sign bills of health issued to vessels leaving your port for the United States. All vessels should be inspected before the bill of health is issued. Copies of the revised edition of the Quarantine Regulations will be sent to you.

Your present instructions do not relate to the regulations of the Immigration Service, but your attention is called to the provisions of the Quarantine Regulations relating to immigrants and steerage passengers. You will make a written report to the Bureau at least once a week concerning your transactions, including anything which will be of interest from a sanitary standpoint, and a weekly abstract of bills of health issued must be forwarded to the Bureau on Form 1931.

While the chief danger, perhaps, is to be apprehended from emigrants and their effects, strict attention must be paid to the tramp steamers and sailing vessels, because sailors are usually quartered in boarding houses located in the poorer sections of a city, and they and their baggage are therefore apt to convey infection. Special attention should be directed to plague and to vessels carrying plague, both for preventive measures and for acquiring all information possible concerning the method of conveyance of this disease. Correspondence should be maintained with the other officers in Europe, with a view to keeping one another informed.

Your mission is one requiring tact, and it is urged that your duties be performed in a spirit of harmony with the consul to whose office you have been detailed.

Your salary while on duty at Hamburg will be paid by check from Washington, and the pay roll should be forwarded in ample time to reach the Bureau not later than the 23d of the month for which it is drawn. Officers will be reimbursed for exchange paid on Treasury checks, upon the receipt of exigency bills covered by subvouchers.

It should be understood that the regulations of the Marine-Hospital Service are to be observed in so far as they are applicable.

Respectfully,

WALTER WYMAN,
Surgeon-General, M. H. S.

P. A. Surg. A. C. SMITH,
U. S. Marine-Hospital Service, Washington, D. C.

CHANGES IN THE EUROPEAN INSPECTION SERVICE.

On June 13, 1900, authority was requested to recall all of the officers included in the European detail, with the exception of the one stationed at Naples, Italy, and four other officers who were to be detailed to the offices of the United States consuls-general in London, Berlin, Paris, and Vienna, respectively. The reasons for this change are fully stated in the communication below given.

WASHINGTON, D. C., *June 13, 1900.*

SIR: In view of the recommendations which follow, namely, to recall a number of the officers who have been detailed to serve in the offices of the United States consuls at foreign ports, leaving a few of the officers as a skeleton organization and for the purpose of observation and conveying information to the Bureau, I have to invite your attention to the letter of November 22, 1899, giving my reasons for requesting authority for the detail of these officers. As stated in my letter of November 22, plague existed at that time in Oporto and Lisbon, Portugal; there were rumors of it in Spain and France, and a cablegram had just been received at the Department of State announcing a case of the plague at Trieste, and it had also been found upon one or two of the ships arriving at European ports, and, as illustrating the possibility of its transmission across to America, attention was called to its having appeared at Asuncion, Paraguay, and Santos, Brazil. It was also officially reported at Kolobovka, Russia.

In accordance with the recommendations made in my letter of November 22, 1899, medical officers of the Marine-Hospital Service are now serving in the offices of the United States consuls at Glasgow, Liverpool, London, Southampton, Queenstown, Hamburg, Bremen, Rotterdam, Antwerp, Havre, Marseilles, Naples, and Genoa.

In the meantime, however, instead of an extension of the plague, as was anticipated, it has been suppressed in Portugal, and no further cases have been reported in Trieste, Asuncion, Santos, or Kolobovka. At the present writing, so far as known, the plague does not exist in any European port.

The services of these officers in foreign ports have been valuable, but for some little time I have felt that the emergency was not sufficient to warrant the expense of maintaining all of them abroad. Indirectly they have been of great utility to the Immigration Bureau, and I am informed that the number of cases requiring rejection arriving at New York has been materially diminished since these officers were sent abroad. On this account an effort was made to have the Immigration Bureau bear a portion of the expense, but this has been declined.

Another reason for the recommendation which is to follow is that the emigrants at foreign ports, on account of the closeness of the inspection, I am informed, are persuaded by the Canadian steamship lines to embark upon their vessels with a view to reaching the United States through Canada and without the close surveillance which is exercised at foreign ports of emigrants leaving for the United States.

While a medical officer has been and is now stationed at Quebec with a view to inspecting any emigrants bound for places in the United States, this inspection service can not prevent large numbers of emigrants, who might be rejected on arrival at the United States or abroad, from finding their way to this country through a Canadian port.

I understand that a bill has been introduced by the Immigration Bureau to provide for certain stations on the border and restricting the entry of emigrants to these designated stations. Until this bill becomes a law, or some other means is provided for an efficient restraint on the Canadian border, emigrants will continue to come that way, for the Canadian government has no immigration law or regulations conforming to our own. In times of great epidemics the quarantine regulations are virtually the same, and therefore at such times the utility of the foreign inspection service is not impaired, but when there is no prevailing epidemic in Europe the effect of our own foreign inspection service is to cause a diversion of traffic to the Canadian lines, as before stated.

In view of the recent outbreak of plague in San Francisco and the great probability that yellow fever will reappear in Florida, and possibly in other Southern States, during the coming summer, the services of these officers are very necessary in the United States.

I have given this matter very careful consideration, and with reluctance have come to the conclusion that, for the reasons herein given, it is desirable to withdraw the major portion of our medical officers from foreign ports. In my opinion, the proper arrangement would be to provide for the permanent detail of medical officers at the United States consulates in the principal ports abroad, and at the same time, either by law provide for the inspection of immigrants on the border or make arrangement with the Canadian government by which the same restraints would be enforced by them as are enforced by the Immigration Bureau in this country. Until such arrangement can be made, and for the reasons above given, I recommend now the withdrawal of the medical officers of the Marine-Hospital Service from the offices of the United States consuls at the several ports, excepting Naples, but for the purpose of observation and for the purpose of maintaining a skeleton organization, recommend that at the following-named 4 places authority be granted to assign 4 of the officers now serving in Europe—Berlin, London, Paris, and Vienna.

These officers to be attached to the offices of the United States consuls-general and that their duties be as follows, namely: To keep thoroughly informed upon the progress of epidemic diseases, which they can do by being provided with proper letters of introduction to our ministers, through visits to the bacteriological laboratories, which are good fields for information, and by keeping in touch with the United States consuls. They will also be directed from time to time to visit the different consulates and to witness the methods of enforcing the quarantine regulations in vogue, and give such advice or information relating thereto to the several consuls as may seem to be proper.

Should the plague or cholera become epidemic in any European city or country, the Bureau would then have at its disposal, already on the ground, a corps of trained officers who could immediately be called upon for duty in any specified port or ports.

Exception is made in the case of Naples, because the officer at that port was detailed by special request of the United States consul, and it is believed advantageous to retain him there, and he will act in the same capacity as those detailed to the consulates-general, in addition to his other duties.

Respectfully,

Walter Wyman,
Surgeon-General U. S. M. H. S.

Approved:
O. L. Spaulding, *Acting Secretary.*

Executive Mansion, *June 14, 1900.*
Approved:
William McKinley.

Hon. Secretary of the Treasury.

In accordance with the above-outlined plan the following details have been made: P. A. Surg. A. R. Thomas, office of United States consul-general, London, England; P. A. Surg. J. B. Greene, office of United States consul-general, Berlin, Germany; Asst. Surg. S. B. Grubbs, office of United States consul-general, Paris, France; Asst. Surg. J. F. Anderson, office of United States consul-general, Vienna, Austria, and Asst. Surg. V. G. Heiser, office of United States consul, Naples, Italy.

Instructions similar to the following were issued to the officers serving in the consulates-general at London, Berlin, Paris, and Vienna, respectively.

Treasury Department,
Office of the Supervising Surgeon-General
Marine-Hospital Service,
Washington, July 27, 1900.

Sir: Referring to Bureau letter of the 15th ultimo, containing instructions regarding your duties at your present port, I have to inform you that the duties were in general outlined in Bureau letter of the 13th ultimo, approved by the Secretary and the President, copy of which was inclosed in the letter above quoted.

The value of your work at your present post will depend largely upon your own efforts. Only general rules can be given. Being attached to the office of the consul-general, it is proper for you to obtain an introduction to the agents of the steamship lines, to the Government immigration officials, and to others with whom you will have dealings, through the agency of the consul-general.

The actual duty of inspection of emigrants is not contemplated at your port, but, at the same time, it is expected that you will gain all possible information regarding the sources of the emigrants and the method of their collection and shipment to the seaports for transshipment to the United States. The Bureau desires especially to know whether quarantinable diseases prevail in the regions where the emigrants are collected, and the methods pursued by the Government officials and by the representatives of the steamship lines in the medical examination of the same.

Through the agency of the public health reports issued by the different countries in Europe, and by means of certain medical publications you will be able to keep posted on the development and progress of any epidemic disease in Europe or the Far East. By keeping in touch with the bacteriological laboratories of your city you will also gain valuable information.

You are authorized, if necessary, to visit such disinfecting stations as have been established by the country in which you are serving or by the steamship lines with a view to ascertaining whether the disinfection there performed is efficient and in accordance with the rules outlined by the quarantine regulations of the United States.

You are directed to write to the Bureau once each week, reporting your transactions and all matters of interest from a sanitary standpoint, and if the outbreak or spread of epidemic disease necessitates immediate action you are authorized to use the cable. If the information gained by you is of a confidential nature, and is so stated in your letter of transmittal it will be so regarded by the Bureau. You will forward a letter each week, even though there are no matters of special import to report.

Respectfully,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

P. A. Surg. J. B. GREENE,
U. S. Marine-Hospital Service, United States Consulate-General,
Berlin, Germany.

LONDON.

REPORT OF TRANSACTIONS AT THE PORT OF LONDON, ENGLAND, FOR THE FISCAL YEAR ENDED JUNE 30, 1900.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Memphis, Tenn., November 1, 1900.

SIR: In accordance with your order of December 4, 1899, assigning me to special quarantine duty at the port of London, England, under the provisions of section 2 of an act granting additional powers and imposing additional duties upon the Marine-Hospital Service, approved February 15, 1893, I have the honor to report that I reached London on December 21, and, after a survey of the situation, cabled you asking that I be granted authority to rent an office and that two additional officers be detailed to assist in the work. This authority having been granted and the officers having arrived by the middle of April, the steamboat companies were notified of the contemplated inspection, and work was commenced May 1.

As no emigrants second-class or steerage passengers sailed from this port to America (except returning American cattlemen), my efforts were confined to the inspection of said cattlemen, crews, and manifests of the different vessels. But few vessels sail from London with a full crew aboard, the complement being made up at Gravesend, about 24 miles below the city. This necessitated sending an officer with each vessel to Gravesend, who would then return by rail, about eight hours, unless detained by fog, being consumed in the trip. On the way down the river this officer would inspect each individual member of the crew (those who came aboard at Gravesend being afterwards inspected as they passed over the rail) and examine the manifest for articles prohibited or restricted by the quarantine regulations of 1899. The manifests were so prepared as to show the origin of the different articles of merchandise whose shipment to the United States was restricted, and when such merchandise came from infected ports within less than thirty days' sail of London, the date of sailing of said goods from said infected ports was also given. This requirement was enforced until the receipt of your letter of May 22, which directed that the time consumed in transit from London to the United States be added when necessary to complete the thirty days of absence from an infected port. This modification of my interpretation of the regulations simplified matters considerably, as during the period of my detail no goods shipped by way of London from a plague or cholera infected locality could reach the United States within the thirty-day period. No entry of any freight whose shipment to the United States was forbidden (bone dust, etc.) was ever found upon the manifests. Whether such shipments were made or not it is impossible to say. It could easily have been done, the inspector being misled by false manifest, and its detection would have been difficult.

The agents of all transportation companies were furnished, before the commencement of the inspection, lists giving all articles whose shipment to the United States was restricted or prohibited, and were requested to consult me personally in regard to any article concerning whose shipment they entertained a doubt before placing such article on board, and the sailing of only one vessel was delayed by my inspectors. This was due to the lack of certificate showing the origin of a shipment of household goods, and the vessel was held up several hours till the required evidence was produced.

As no passengers from infected territory sailed from London to the United States during the two months that restrictions were enforced, no personal baggage was disinfected. A few shipments of household goods from India, which under the regulations would have required disinfection, were withdrawn by their owners rather than submit them to this process.

Vessels inspected at London, England, May 1 to June 30, 1900.

Class of vessels.	Number of vessels.	Number of crew.	Number of cattlemen.	Number in ballast.	Number with cargo.	Remarks.
Steam ships	65	3,140	474	16	47	Two men were rejected, one for malarial fever and one for typhoid fever.
Sailing ships	11	225	....	3	8	
Total	74	3,365	474	19	55	

* * * * * * *

I desire to express my appreciation of the services of Acting Assistant Surgeons Barnsby and Hough. They responded with alacrity to all calls made upon them by day or night, and no vessel was ever compelled to delay her departure from lack of an inspector.

Respectfully,

G. M. MAGRUDER,
Surgeon, M. H. S., in Command.

The SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

HAMBURG.

REPORT OF TRANSACTIONS AT THE PORT OF HAMBURG, GERMANY, FOR THE FISCAL YEAR ENDED JUNE 30, 1900.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
New York, N. Y., August 3, 1900.

SIR: I have the honor to report upon the duties performed by me at the port of Hamburg, Germany, in connection with the quarantine regulations of the United States during my period of service there, from December 23, 1899, to June 30, 1900.

In accordance with orders dated December 2, 1899, I proceeded to Hamburg, arriving just at the beginning of the Christmas holidays, and I devoted the first two weeks to becoming familiar, so far as possible, with the methods in use for handling emigrants and reporting upon the health of vessels sailing to United States ports. I found everything connected with the sanitary control of outgoing vessels in the hands of local government officials and covered by German regulations, with the possible exception of measures looking to a supervision of cargo. German theories do not recognize any danger in cargo except rags and used clothing and bedding and articles classed as such. The memory of the cholera epidemic of 1892 and the difficulties and losses attendant upon it was vivid in the minds of Hamburg citizens, and the strict supervision of the emigrant traffic and of commerce by sea, which was the outgrowth of that time, could scarcely be sharpened by rumors of danger from plague. The former emigrant barracks were in use, and at the time of my arrival all emigrants from Russia passing through the port were assembled and held there for embarkation. Other emigrants, or the great body of them, put up at special licensed hotels, and on the day of embarkation all were assembled at a large passenger hall on the river front, and before proceeding aboard the tender which took them to the ship they filed before a physician of the emigration bureau of Hamburg, who examined them and put his stamp upon their tickets. The stamp of the United States consular inspection was also put on the "inspection cards" at this time. At the gangway a line of police inspectors stopped each steerage passenger and examined his passports, an exception being made in the case of those whose tickets bore the stamp of the emigrant barracks, since no passports are expected of the Russians on account of the fact that the most of them leave their country in violation of the Russian law.

The emigrant barracks at Hamburg form one of a triple system of control stations for emigrants coming out of Russia. One set consists of a number of stations on the Russian border of Prussia, and between these and the points of embarkation at Hamburg and Bremen is the central control station at Ruhleben, near Berlin. The plan of all is, I understand, identical, and includes a steam apparatus for disinfecting the clothing and effects of emigrants, with an unclean and a clean end, bath rooms and rooms for undressing and dressing and for examination by an official examining physician. The station at Hamburg has, in addition, barracks for the accommodation of the emigrants while awaiting embarkation.

Other steerage passengers, except those from Russia, do not pass through these control stations; and this is unfortunate, as a great many come from Roumania, and an occasional one even from Turkey in Europe and Turkey in Asia. A large proportion of those from the Austrian provinces are also very unattractive from the standpoint of personal cleanliness. There is no disinfection of the baggage of those from outside Russia except such disinfection of used feather bedding as can be enforced through United States consular inspection. The examination of the steerage passengers as they file past for embarkation is necessarily somewhat hasty, and would not suffice in case of actual danger from epidemic disease. The only purpose of the sanitary control of emigrants by the German authorities may be said to be the protection of German territory and German vessels from infectious disease. Accordingly a portion of baggage belonging to those steerage passengers who are subject to control in Germany is passed through the country without being disinfected or opened or disturbed between its place of origin in Russia and its port of destination in the United States. During the period of my service at Hamburg, however, there was no danger from epidemic quarantinable disease in any part of Europe from which the emigrants passing through Hamburg were derived, and no unusual precautions appeared necessary. The alarm from the plague was beginning to subside at the time of my arrival, and was almost a thing of the past by the end of June. During the period from January 1 to June 30, 44,037 steerage passengers were embarked at Hamburg for the United States. The most of these were derived from Austria and from eastern Europe as far south as the Turkish border.

A strict sanitary supervision of all the shipping in the harbor of Hamburg is maintained by the port physician, and his duties also include an inspection of the medical and surgical equipment of every German vessel departing from the port. Other officials inspect the vessels with reference to air space and ventilation of steerage compartments, separation of the sexes, food supplies, and everything pertaining to the safety of the crew and passengers.

On account of the fact that everything pertaining to the sanitation of vessels departing for the United States and the inspection of their passengers was held in the hands of the local government officials, and on account of their attitude toward any extension of the system of United States consular inspection, I found it necessary to confine my duties quite closely within the letter of the quarantine regulations as before interpreted at Hamburg. I informed myself as well as possible on the subjects touched upon in the bills of health issued, was present as a spectator at the official inspections of steerage passengers embarking for the United States and at the official inspections of their accommodations aboard ship, and I assisted the consul in the sanitary supervision of cargo destined for the United States. The inspection and labeling of baggage under Article V, paragraph 10, of the Quarantine Regulations was performed by an assistant who was placed under my control by the consul. The disinfection of used feather bedding found in the baggage of those steerage passengers not passing through the barracks was done under his supervision in a steam plant at the passenger hall, before referred to in this report.

As will be seen from the figures given above, the number of emigrants passing through Hamburg in the first half of the present calendar year was unusually large and was at times greater than there were facilities for handling, both the barracks and the emigrant hotels being sometimes overcrowded. Plans for a new control station and barracks with twice the capacity of the old have already been drawn. There is at present, however, no immediate fear of epidemic disease at Hamburg.

Respectfully,

A. C. Smith,
Passed Assistant Surgeon, M. H. S.

The Surgeon-General Marine-Hospital Service.

GENOA.

REPORT OF TRANSACTIONS AT THE PORT OF GENOA, ITALY, FOR THE FISCAL YEAR ENDED JUNE 30, 1900.

SIR: In compliance with your order dated August 11, I have the honor to submit the following report of the transactions at the port of Genoa, Italy, during the six months ending June 30, 1900:

The commerce of Genoa has increased markedly since 1893, so much so that wharfage facilities are inadequate. At that time there was only one steamship line handling the passenger traffic to New York, namely, the North German Lloyd, with fortnightly sailings. To-day Genoa has direct communication with nearly all parts of the world, including the plague-infected ports of Hongkong, Bombay, Madras, Aden, Port Said, Alexandria, Santos, Rio de Janeiro, Buenos Ayres, and Sydney. In winter there are two and three fast steamers leaving weekly for the United States and its dependencies. These sailings are apportioned as follows: North German Lloyd and Hamburg-American lines have four and five departures monthly. In summer the latter company withdraws and the Lloyds maintain a semi-monthly service. The Prince Line and the Italian General Navigation Company are not under the same management, but have friendly relations, under which are operated from three to four steamers per month in winter. Some of the other and less important lines are: The Anchor, the Creole (Spanish) to the West Indies and New Orleans, and the Kosmos to San Francisco via South American ports. In addition to these there are a number of "ocean tramps" and sailing craft—the former in water ballast and the latter with marble, cotton waste, and old bagging collected from the mills in northern Italy.

An estimate of the population of the city in 1899 gave 221,589 actual residents, a gain of 10,000 since 1892. Taking into consideration the age of the city and the crowding together of its buildings, the sanitary conditions maintained are good. Street sweeping and scouring and sewer repair engage the attention daily of the health department, which, with the expensive improvements of widening narrow streets and opening new ones through crowded portions, tend to show in no unmistakable way that the requirements of modern sanitation are being carried out. An abundance of pure water is obtained from streams and reservoirs in the mountains from 10 to 12 miles from possible city pollution. Smallpox is often present, but not in epidemic form. The mortality rate in 1899 was 15.1; birth rate, 19.9.

EMIGRATION.

A large share of the emigration from northern Italy goes to South America, and some of it has been diverted to Havre; hence the number leaving Genoa is small as compared with other places. However, should epidemic diseases appear either at Havre or Naples the tide would set in toward Genoa, as it did in 1893. The class of emigrants is, as a rule, good for Italians, but the same can not be said of the considerable sprinkling of Poles and Austrians passing through. They are usually in need of bodily sustenance and lavations. At this port the steamship companies have few or no facilities of their own to meet the requirements of traffic during an epidemic. There are no emigrant hotels or barracks to accommodate suspects who might have to undergo a brief period of medical surveillance prior to embarkation. Steerage passengers begin to arrive the day before sailing and lodge anywhere to suit their slender means, usually at cheap houses on the water front. The Lloyds and Hamburgers allow such as have arrived to sleep aboard their vessels the "over night," passing them ashore in the morning for the inspection. Manifestly this is an objectionable arrangement, for should epidemic disease break out among them the vessel would have to be detained for disinfection. This defect was repeatedly pointed out, as was also the lack of facilities for the disinfection of baggage on a large scale. Small quantities of baggage had to be disinfected in the steam caldaio on board; large quantities were sent by barge to the quarantine station of the port, situated about three-fourths of a mile by water from the place of embarkation. On all occasions this work was efficiently performed by the courteous officer in charge.

For vessels having an early sailing hour it was found best to examine baggage, or as much as had arrived on the day before. At this time passports were examined, the steerage passengers given an informal inspection, and their effects labeled or disinfected, as circumstances required. Work of this kind was intelligently and faithfully performed by an inspector employed by the companies, the opening and labeling or disinfecting of baggage being done under my supervision. Soiled linen and old bedding and unsuitable food were the objects sought. The former were seldom in evidence, clean outfits of freshly laundered articles being the rule.

A courteous invitation, in writing, from the captain of the port enabled me to hold my inspections in conjunction with the officers of the Italian Government. This inspection or "visite," as it is called, was held for most of the vessels at 8.30 a. m. in a government building admirably provided with accommodations for sheltering and inspecting emigrants, situated on the main pier of the port. A few vessels, however, embarked passengers by small boats, and for these the inspection of persons and things was held on board in the presence of the Italian officers and before their inspection. In this way those who were held over for any cause did not have to appear before the commission, as they had to do only with persons leaving the Kingdom of Italy.

This building is provided with rooms and gates, so that a vessel while embarking passengers can be shut off from the curious crowds which usually congregate to witness the proceedings. The emigrants were allowed to pass one by one through a room in which the surgeons were stationed, ample time being allowed for a thorough inspection. If an emigrant showed signs of sickness he was put aside for a closer examination, and if later found diseased it was my practice to take away his "inspection card," which debarred him from passing the inspector stationed at the gangway of the vessel. As soon as the emigrant has passed the medical officers he proceeds direct to the presence of the Italian commission. Here he is subjected to a close scrutiny and his papers passed upon; if found eligible he goes then to the gangway, where the inspector awaits to stamp his inspection card. The absence of this card would indicate that he had failed to pass the medical inspection. Safeguard of this kind was not necessary, for there was very little chance for a passenger who had been recommended for rejection to pass unnoticed the narrow limits of the space allotted to the use of the medical board. Those who were found suffering from an illness the nature of which could not then be determined were advised to go to hospital for observation and treatment. Nearly all so advised showed up at a subsequent sailing, well and happy, and were allowed to embark. Steerage passengers were questioned as to previous successful vaccinations; if found unprotected they were turned over to the ship's surgeon for vaccination. One instance illustrating the unreliability of quarantine methods as practiced at a Mediterranean port came up. Some steerage baggage from Bombay having been marked for disinfection, the owners demurred, and claimed that it had been disinfected at Marseilles. On opening the baggage in question a nest of live scorpions was discovered. As these vicious animals belong solely to India, it seemed proof positive that not even a pretense at disinfection had been carried out.

All steerage baggage from plague and cholera infected ports was disinfected by steam. Occasionally baggage from Italian cities where smallpox, diptheria, and scarlet fever prevailed was received, and in each case disinfected. It was inconsiderable and gave no trouble.

Some difficulty was experienced at first in obtaining weekly sanitary reports from the city health authorities until the matter was taken to the surgeon-general of the province. This officer courteously offered to furnish this information if I would call or send to his office twice a month. Contagious-disease reports were afterwards obtained by a personal call on this functionary.

The total number of passengers inspected for the six months ended June 30 were: Cabin,. 819; steerage, 3,936; number of steerage passengers rejected for dangerous contagious and loathsome diseases, 52; number held over for observation and pending the development of or convalescence from disease, 14. Of this number all but 4 sailed later. Total number of pieces of baggage inspected, 3,621; number of pieces disinfected, 68. In this time 65 persons who had but recently arrived from ports infected with plague requested steerage transportation to the United States. That it was possible for some of them to have had the ambulatory form of plague on landing in Genoa can hardly be denied.

VESSEL AND CARGO INSPECTION.

The freight situation required close attention, especially with reference to transshipments. Under the Italian regulations vessels that have taken cargo at infected ports under certain precautions, such as loading from lighters in the stream without communication with the shore, are allowed to come in without detention. By this route hides, wool, rugs, dates, grain, and coffee may reach Genoa and be offered for shipment to New York. It may be added that the danger of infection from certain of these commodities is very much lessened by the method of transferring from vessel to vessel; the unloading is done in a primitive way into lighters exposed to the sterilizing influences of the elements. When grain in bulk is discharged in this way it may effectually dispose of the danger from rat infection.

At first it was thought best to inform verbally all concerned that merchandise in general from infected places was considered dangerous; that some classes required disinfection; that others were excluded, and that all required inspection. Therefore no classified lists were furnished, as the then status of epidemic disease did not seem to warrant it, but a list of infected places was given out. Some of the lines, notably the Lloyd, Hamburg-American, and the Prince lines, so far as could be learned, exercised considerable care in the selection of merchandise from the plague ports offered for shipment to the States.

A circular letter, issued by the consul to agents, brokers, et al., informing them of the detail of a medical officer to the port and requesting masters to report promptly at the consulate their exact sailing hours, met with a cheerful compliance.

To avoid delays, especially on the large passenger steamers, much of the cargo inspection was made the day before. Manifests are not sent to the ships until the last few minutes, so a call at the office of the agents was often necessary in order to ascertain the nature of cargo not cleared from the consulate. It should be understood that it is necessary to ask for the manifests of all the cargo, else only that destined to New York will be given, and perchance merchandise from infected ports listed for way stations will be overlooked. Emphasis should be laid upon the necessity of knowing at all times all possible sources of contamination to the personnel of a vessel. Nearly all the rags of Italy are collected at Livorno (Leghorn), and from this depot are handled by the Prince Line, whose steamers touch at Genoa for supplemental bills of health. Through correspondence with our consul it was ascertained that these rags are carefully disinfected before shipment. After the publication of the amendment to paragraph 6 of Article IV of the United States Quarantine Regulations, certificates of disinfection of these shipments were always found attached to the original bills of health of these vessels.

Large quantities of cotton waste and old bagging, collected from the mills in northern Italy, are shipped from this port to the United States. Much of this waste has been used in wiping machinery and for other cleaning purposes. It is oily, dirty, and should be classed as rags and disinfection required. The bulk of this material goes by sailing vessel to Baltimore and Philadelphia to be used in the manufacture of paper. A steam cleaning plant, especially adapted to the disinfection of this material, is conveniently located at Corniglano, Ligure, a suburb of Genoa. The old bagging is also of interest, since it may be taken from bales of cotton from Egypt and India. An effort was made to find out how much of this stuff had come from Egypt, but only American trade signs were seen on the bales, and as they also bore the disinfection marks of the plant at Corniglano, no further steps were taken. Export merchandise from this port consists largely of macaroni, cheese, wines, olive oil, silks, fresh hides, fruits, sausage, earthen ware, straw and cotton goods, marble, and sculptured works.

In time of an epidemic the question of ballast here will be an important one. It consists largely of the débris of the city improvements and the soil of excavations, which is at all times a menace to the health of the ship carrying it. The further use of this material was discouraged entirely, masters being advised to take rock ballast, which is plentiful at a very reasonable charge.

Some attention seems to have been paid here to ship sanitation and ventilation. At no time did it become necessary to complain of unsanitary or crowded conditions of the sleeping apartments or of defective plumbing of water-closets, drains, etc. As Genoa is the original port of departure for the passenger steamers, it is quite in the natural order of things to find leaving it a clean ship in the hands of a clean crew.

Bills of health to the number of 131 were issued to vessels, and, with but few exceptions, all these were boarded and their crews mustered and inspected. Coal steamers previously engaged in the trade between English and Italian ports were not boarded unless sickness had occurred on board or new members of the crew had been signed in Genoa.

It is a pleasure to state that my relations with the consul, steamship agents, and Italian authorities have been harmonious throughout and that my work at all times was made more agreeable through the many courtesies shown by them. Be it said to the credit of many of the agents that they regarded the presence of the medical inspector as a distinct advantage in that his vigilance ashore safeguarded in a large measure the health of the personnel of the vessel, and also saved the companies the expense of deportations and the legal actions arising therefrom. In closing this report I wish to express my appreciation for many courtesies shown by Mr. James Fletcher, United States consul at Genoa, Italy.

Respectfully,

RUPERT BLUE,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

QUEENSTOWN.

Report of Transactions at the Port of Queenstown, Ireland, for the Fiscal Year ended June 30, 1900.

Office of Medical Officer in Command,
Marine-Hospital Service,
Queenstown, Ireland, July 5, 1900.

Sir: I have the honor to report that during the six months ending June 30, 1900, 4 bills of health and 83 supplemental bills of health were issued. The 4 bills were issued to sailing vessels going out in ballast to Brunswick and Savannah, Ga., Philadelphia, and New York. Of the 83 supplemental bills, 44 were issued to regular passenger and mail steamers bound to New York, 21 to regular passenger steamers to Philadelphia, 12 to regular passenger steamers to Boston, 3 to cargo steamers calling for mail only and bound to New York, 1 to a passenger steamer to Portland, Me., 1 to a cargo steamer in ballast to Newport News, and 1 to a sailing vessel in ballast to Ship Island, Mississippi. During the six months 19,778 passengers with 28,138 pieces of baggage were inspected and passed. I also inspected 138 crew shipped here. One case of lupus vulgaris, 3 of scabies, and 2 of trachoma were rejected during the six months. One case of pneumonia, which developed after leaving Liverpool, was put ashore here. The patient recovered and completed the journey later.

The health of the port and, I may add, of the whole of Ireland, has been good.

The emigrants leaving here are healthy, cleanly, and, as a rule, young.

Respectfully,

J. H. Oakley,
Passed Assistant Surgeon, M. H. S.

The Surgeon-General Marine-Hospital Service.

ANTWERP.

Report of Transactions at the Port of Antwerp, Belgium, for the Fiscal Year Ended June 30, 1900.

U. S. Marine Hospital,
Detroit, Mich., September —, 1900.

Sir: As directed by Bureau letter of the 11th ultimo (R. M. W. and E. B. S.), I have the honor to submit the following report upon the work of the Service at Antwerp, Belgium, from January 1, 1900, to June 30, 1900:

Antwerp, a city of 287,000 inhabitants, is the principal seaport of Belgium, situated on the river Schelda, 60 miles from the North Sea. The surrounding country is very low, and by opening the dikes the town could be nearly surrounded by water. The climate is damp throughout the year, and especially so during the winter months, when the humidity is constantly near the point of saturation. Owing to the proximity of the Gulf stream the temperature is equable, and the thermometer rarely falls below —10° C., but the humidity imparts the sensation that it is much colder. Notwithstanding the conditions, the average annual death rate is not high—16 to 18 per thousand—yet, as would be expected, diseases of the respiratory tract claim a large percentage.

Typhoid fever was present in the city throughout my tour of duty, causing three or four deaths weekly, with probably ten times as many cases, most if not all of which I consider attributable to drinking well or cistern water.

Up until June there was an average of five cases of smallpox reported weekly, with a death rate of about 40 per cent. The city is rarely free from this disease, and it seemed to be accepted much as a matter of course. When it was stated that the most of the German cities were practically free from the disease, the reply was that the report of cases must be suppressed by the German authorities—it was beyond reason for a city to exist without smallpox.

WATER SUPPLY.

The water supply is obtained from (1) the river Néthe, (2) wells, and (3) cisterns. The water from the river Néthe is under the control of the Antwerp Water Works Company, Limited. To improve its quality, the large amount of vegetable matter which it contains is allowed to precipitate in a sedimenting basin, after which the water is passed through a sand filter. The result would be a very fair quality of drinking water the year around were it not for the fact that occasionally the plant fails to operate, and at these times the color and odor render it at least offensive to sight and smell. The supply being limited to those who are willing or able to pay for it, from indifference or poverty probably half of the population obtain their water from wells or cisterns. To appreciate the quality of water from these last two sources it is necessary to know something of the means employed for disposing of the sewage.

DISPOSAL OF SEWAGE.

There are few if any structures in the city which we would call sewers, although there are several old canals covered to the sight but into which surface water can run. Their entrances into the river being below low-water mark, they are only imperfectly flushed by the rise and fall of the tide.

Most of the buildings have a brick and cement vault in the rear, into which is conducted the waste water. When these structures are new they are usually tight, but they soon begin to leak, and as a result the subsoil is saturated with filth. The vaults are emptied when full by a portable steam pump, which draws the fluid into large iron tanks, in which it is conveyed below the city and turned into the river. Houses not thus equipped have brick or wooden vaults for the depositing of excrement, and the water is turned into the street. This last custom is prevalent throughout the city because it diminishes the frequency and therefore the expense of pumping out the vaults. The mixture of the seepage from the river and closed canals with the ooze from the vaults and the surface filth makes the well water.

The cisterns are partially or entirely beneath the surface, and consequently when improperly constructed, as is almost invariably the case, they are equally as bad as the wells.

I arrived at Antwerp December 22, 1899, and the following morning visited the United States consul-general, George F. Lincoln. Inasmuch as the Christmas holidays were at hand and little business of any kind is transacted in Belgium at that season, it was deemed advisable to wait until after January 1 before beginning active work.

During this interval, through the courtesy of Mr. Francis E. Vouillon, United States deputy consul-general, I was enabled to meet all the agents forwarding freight to the United States. My mission was explained to them, and a general willingness was expressed to comply with our regulations.

CLASS OF SHIPS.

The vessels sailing from Antwerp to ports in or belonging to the United States may be divided into four classes: (1) passenger steamers, (2) regular freight steamers and tramps, (3) petroleum or tank steamers, and (4) sailing vessels.

There is at present only one line engaged in passenger traffic with the United States. The Red Star Line steamers sail regularly every Saturday for New York, and each alternate Thursday a boat leaves for Philadelphia, carrying one class of passengers—steerage. The boats plying between New York and Antwerp are fairly well equipped for passenger service. The third-class apartments are on the main deck and so arranged that the families and unmarried girls are separated from the men traveling single. The entire width of the deck is utilized by each compartment, and along the sides apartments are constructed by board partitions with a space at the top permitting free circulation of air. Each apartment is entered by a door, facing which is a porthole, and double tier of bunks allows of sleeping space for twenty-four persons. The mattresses are wire, and each person is supplied with a clean bedtick filled with fresh straw. The rest of the bedding is furnished by the passenger.

In the center of the compartment is placed a long table and food of good quality is supplied from a special galley for that class of passengers. Lavatories and closets are of sufficient number, well kept, and with a supply of fresh water equal to the demands, which are said not to be excessive. The closets are flushed with abundance of salt water while at sea.

The apartments are kept very presentable by a fresh coat of paint applied previous to each sailing from Antwerp, and the floors are thoroughly washed and sanded. Smoking is allowed only on open deck.

Upon inspection the various compartments were always apparently in perfect order.

The crews of the Red Star steamers are individually examined in private previous to each shipping by a physician in the employ of the company. A new hand applying for a position is stripped and carefully examined for any disease or disability which would incapacitate him for duty. Once satisfied as to the sailor's physical condition, subsequent examinations were limited to an inspection for venereal diseases, the presence of which was sufficient cause for rejection.

While experience has proved that this care and expense are to the advantage of the company, and therefore selfishly expended, the result was nevertheless an efficient enforcement of our own regulations.

The freight steamers are of the class generally termed tramps, in contradistinction to passenger boats, but actually there were very few steam vessels bound out of Antwerp for the United States except regular liners. They are rarely clean on the surface when in port, because the moment they are docked the incoming crew is discharged and the work of removing the cargo is at once begun. As soon as space is secured loading commences, and the two labors are carried on together close up to the time for sailing. The stevedores do no cleaning, and the outgoing crew are never aboard until the last minute. The forecastles are generally left in an abominable state by the old crew and found in same condition by the new. The captains claim that it is impossible to keep them any better. But on my first visit, by certifying the forecastle "mechanically foul" on the bill of health and calling the captain's attention to the statement he would usually soundly berate the first officer, in whose charge they were, and as a result thereafter the apartments for the sailors were usually in good condition.

The water-closets are without flushes and are cleaned with hose or buckets. In order to prevent the stevedores from using the hold of the vessel, one closet was left open for them and the others locked. By this means the remainder were in good condition on inspection.

Considerable difficulty was at first encountered in inspecting the crews of these vessels. They plan not to arrive until the last minute, and the shipping master who controls them until they are handed over to the captain is about the last person to leave before the lines are cast off. The officers exercise little or any authority until the vessel is clear, and taken altogether the inspection at the time of sailing was very unsatisfactory.

Most of this class sail under the British flag, and by courtesy of the British consul-general I was allowed to be present when the crews were signed at the consulate-general. The agents informed me when the crews were to be signed, and by this arrangement much of the previous annoyance was done away with.

The petroleum or tank steamers are owned by the Standard Oil Company, and they usually return to the United States with their tanks filled with sea water. The ships were invariably neat and clean in every particular. The changes in the crew were few, and had occasion arisen to have neglected the inspection of any of the vessels this class would not have given me the least uneasiness.

The majority of the sailing vessels were bound for ports on the west coast of the United States, and the larger portion of their cargo was cement; arms, wines, liquors, and various manufactured articles were also carried, but not one ever took freight that could be classed suspicious. They were generally clean, and while they were always as carefully inspected as were the trans-Atlantic steamers like class 3, the probability that they would carry infection was very slight.

CHARACTER OF MERCHANDISE.

Antwerp is one of the largest transshipping ports in Europe for merchandise from India, northern and eastern Africa, South America, and Australia. The articles coming from the above-mentioned countries and destined for the United States are the various animal products, bones, hides, horns, hoofs, hair, and wool.

Shippers were informed that all goods from the above source must be considered suspicious, and that their treatment would depend upon their history and condition at the time of inspection. When disinfection of hides was mentioned, a protest was at once made on the ground that their treatment according to United States Treasury regulations diminished their market value, and no amount of arguing seemed to change their minds. They were better satisfied with thirty days' detention.

The freight originating in Europe consisted mostly of manufactured articles, cement, rags, and hides, the last two of which were regularly accompanied by a consular certificate of disinfection. With the exception of the rags, so far as I was able to judge, none of the articles of European origin could be considered dangerous from a health standpoint, and they were under surveillance only enough for me to satisfy myself of their origin and nature.

RAGS.

Large quantities of rags are shipped each week from Antwerp, most of them coming from Ghent, one of the largest rag-collecting centers of Europe.

There was only one firm in the city shipping rags to the United States. I visited his plant on different occasions, and while his facilities were exceptionally good for spreading the rags he was using only about one-sixth of the proper quantity of sulphur. He was instructed upon this point and manifested a disposition to comply with the regulations. The deputy consul-general, to whom such matters are intrusted, was also informed relative to the requirements, and I am reasonably certain that in this particular instance the regulations will be enforced.

HOTELS FOR EMIGRANTS.

Upon the arrival of the emigrant trains at Antwerp the passengers are met by agents of hotels devoted entirely to the housing of emigrants. The different ones, of which there are thirteen, are conducted by individuals of the nationality of the people accommodated. In this way it is claimed that the emigrants are much better satisfied than with such apparently excellent arrangements as exist at Rotterdam for housing and handling the same classes. I learned that some time ago the Belgian authorities sent several persons to Rotterdam to stay in the companies' hotel there as emigrants in order to learn from the passengers themselves how they liked being obliged to sleep in clean beds, take an occasional bath, and observe a decent degree of cleanliness. The result of this investigation seemed to indicate that a clean hotel was so unpopular that—for business reasons, desiring as many emigrants as possible to sail from Antwerp—they decided to allow the plan of each one seeking shelter with those of his own nationality to continue instead of directing the Red Star Line to erect one large, well-conducted hotel for its steerage passengers.

It may be said in favor of these hotels that they are small, and in the case of the outbreak of an epidemic disease the infected house could be easily quarantined. The physician for the Red Star Line inspects them frequently, and once each month they are visited by a member of the emigration commission. Each one is disinfected by sulphur dioxide once a month whether there is apparent demand for it or not, and carbolic acid and chloride of lime are freely employed about urinals, closets, etc. The patronage of these hotels is dependent upon the steamship line, and for that reason the proprietors are anxious to please the company in every possible way. They act as guides for the emigrants to the dock, and at the inspection they render valuable assistance as policemen and interpreters.

CONDITIONS AS TO EMIGRATION.

As the result of P. A. Surg. M. J. Rosenau's labors at this port six years previous to my arrival I found excellent arrangements for the handling of emigrants, including inspection, bathing, and disinfection of effects, all of which is described in his report published in report of United States Marine-Hospital Service, 1893. On his departure Dr. De Fraysses, an employee of the Red Star Line, was designated by the United States consul at Antwerp as the doctor to superintend the inspection of emigrants. The emigrants were inspected by Dr. De Fraysses, the surgeon of the outgoing ship, and a representative of the Belgian commissioner of emigration. The baggage was brought to the dock a few hours previous to sailing.

At first the commissioner of emigration objected to my official presence at the inspection of emigrants on the grounds (1) that his Government had already provided for all necessary inspection of emigrants; (2) that I was not accredited to the Belgian Government, so that he could not recognize me officially; (3) that reflections were being made on the efficiency of the commission, and (4) that an attempt was being made to enforce United States laws in Belgium.

January 10 I visited the United States minister, Hon. Lawrence Townsend, at Brussels, showed him my orders, and stated to him the objections made by the commissioner. He expressed his approval of my mission, and promised to inform the Belgian Government of my detail and to use his influence to obtain for me the privilege of carrying out my instructions, all of which he did, and as the result I was accorded permission by the minister of foreign affairs to witness the inspection of emigrants as conducted by the commission.

The examination of the emigrants was directed more particularly to the detection of trachoma and favus, and to that extent was as good as could be asked. Incidentally other infectious diseases would not very often escape their attention.

Summary of bills of health issued.

	Passenger ships.	Freighters.	Sailing vessels.	Supplemental.	Total.
January	6	15	6	1	28
February	6	13	5	....	24
March	7	15	3	3	28
April	6	9	7	....	22
May	7	16	6	2	31
June	7	18	4	1	30
Total	39	86	31	7	163

Summary of passengers inspected.

Month.	Steerage.	Cabin.	Rejected.
January	889	....	20
February	3,059	105	26
March	4,483	238	66
April	2,677	196	35
May	5,123	372	41
June	3,214	405	14
Total	19,445	1,316	202

CHARACTER AND NATIONALITY OF EMIGRANTS.

By far the larger part came from Germany, Austria, and Hungary, but at different times nearly all the other countries of continental Europe were represented except Turkey and Spain. None of them came from plague-infected countries, and they could be characterized, in general, as a fair class of emigrants.

Roughly, 1 per cent of those that presented themselves for examination were refused passage, and, as showing how carefully the selections were made, it may be said that during the six months only two or three persons were denied admission into the United States because of loathsome or contagious diseases.

Respectfully submitted.

E. K. Sprague,
Passed Assistant Surgeon, M. H. S.

The Surgeon-General Marine-Hospital Service.

ROTTERDAM.

Report of Transactions at the Port of Rotterdam, Netherlands, for the Fiscal Year ended June 30, 1900.

United States Consulate,
Glasgow, Scotland, November 2, 1900.

Sir: I have the honor to make the following report of the transactions of the service at Rotterdam, Netherlands, from January 9, 1900, to June 30, 1900. In obedience to instructions contained in Bureau letter of December 22, 1899, I arrived at Rotterdam on January 9, 1900, and at once called upon the United States consul, Col. S. Listoe, who received me most courteously and did everything possible to facilitate my work. The remainder of the first week was spent in inspecting the methods of shipping and arranging for future inspections. I called upon the Holland-America Steamship Company and explained to them the object of my detail. This company is the only one carrying immigrants from Rotterdam to the United States.

I found Rotterdam a town of 320,000 inhabitants, situated on the river Maas, 15 miles from its mouth. The city lies very low, part of it even below the level of the river at high tide. Canals everywhere intersect the city and are the common receptacle for the sewage and all waste. In spite of the insanitary condition of these canals the health of the city is good, and there had not been a case of quarantinable disease in the city for several years, and the death rate was about 19 to 20 per thousand. Rotterdam is largely a port for transshipment, owing its importance to the Rhine, so very little of the freight departing from this port originates in Holland, but comes largely from Germany. A considerable quantity of freight is received here from the Dutch East Indies and goes eventually to the United States.

During the year 1899 375 vessels cleared from this port for ports in the United States. Most of these boats are in more or less regular trade with United States ports, and "tramps" are relatively rare. The Holland-America Line runs a weekly service of passenger boats to New York and freight boats occasionally to Newport News. The Neptune Line has a weekly service of freight boats to Baltimore. A number of other lines run boats at rather irregular periods to Baltimore, Philadelphia, and Boston. There is a considerable oil trade carried on by so-called tank steamers. Sailing vessels were nearly all engaged in the naval stores trade with the Southern ports of the United States. It thus happened that most vessels clearing for United States ports had made their last voyage from some port in that country. Trade relations, however, are very frequent between Rotterdam and various infected ports, particularly Oporto, the South American ports, and the East Indian ports.

I visited the docks of the Holland-America line and found the conditions there the same as described by Surg. R. M. Woodward in his report for 1893. The disinfecting plant was, however, very much out of repair. A new disinfecting plant, of the same pattern as that used by the service, was ordered from the United States and had arrived before my departure, but was not yet in place.

A circular letter was drawn up to be sent to all the ship brokers, notifying them that after January 15 all boats sailing for the United States would require inspection.

The plan of inspection as finally adopted was as follows: All vessels were requested to apply for bills of health at least twenty-four hours before the intended hour of sailing, and at the same time an hour was arranged for the inspection. As the Maas is a tidal river, vessels of deep draft are compelled to leave at high tide. Inspections were, however, made as late as possible before sailing. At the appointed hour I visited the vessel, examined the condition, particularly of the living apartments and water-closets, inspected the crew, and the manifests of cargo, and then delivered the bill of health to the captain. In the case of British ships it was found impossible to get the crew all aboard until the moment of sailing, and as a result whenever practicable I inspected the crew at the British consulate where they signed the articles. This plan is open to the objection that men, even after signing articles, are not always on hand at sailing time and substitutes are taken in their places, and because the inspection must take place usually the day before sailing. In the case of vessels of other nationalties there was relatively little difficulty in having the crew aboard for inspection.

The condition of the decks of freight boats was usually unsatisfactory because the discharge and taking in of cargo, as well as coaling of the vessel, usually go on until the time of sailing, and to have insisted on the decks being cleaned up would have necessitated the vessel waiting for another tide and thereby losing several hours. Tank vessels and sailing vessels were nearly always in excellent condition.

As stated above, only one line carries passengers from Rotterdam, and their facilities for this trade are excellent. Steerage passengers are met at the railroad station by an employee and taken by boat directly to the companies' hotel, which is well fitted up and kept in a scrupulously clean condition. The morning after arrival all new immigrants were inspected by myself and the company's surgeon, each one passing along in good light and time being taken to examine eyes and hair and feel the bodily temperature. Any case of sickness was sent to hospital, and if the disease was not curable in reasonable time they were returned to their homes. At the time of embarkation a second general inspection was held, and at this inspection there was always present the United States consul or his representative, a police officer, and an officer of the Netherlands immigration commission, as well as myself and the ship's surgeon. Each card was stamped at this time.

The baggage of all immigrants was sent to the baggage room the day before sailing and was there inspected. The steamship company always provided sufficient assistance, so that the work was rapidly done. Each bundle was opened and placed on a long table and after inspection fastened and put aside by the assistants. All food, except fresh fruits, and all bedding and old rags, etc., were thrown out. The bedding was later disinfected by steam and allowed to pass. All baggage, either inspected or disinfected, was properly labeled.

The steerage accommodations on all the boats of this line are fairly good, and in only one instance was there any cause for complaint, in this instance steerage being carried on the lower deck, which was poorly lighted and ventilated.

During the period covered by this report 140 vessels were inspected and received bills of health, and of this number 124 were steam vessels and 16 sailing vessels. There were inspected by me 9,821 steerage immigrants, who carried 6,620 pieces of baggage, of which number 1,306 were disinfected by steam. The number of steerage passing through at this time was unusually heavy and of a fair class. A large percentage were from central Europe, and a few Dutch. A few Italians also passed through, but why they should take such a circuitous route I was unable to learn.

No case of quarantinable disease occurred among the immigrants, and there were only three rejections on which I insisted—two cases of measles and one unknown fever. As regards the class of freight passing through Rotterdam, the majority of it originates in Germany and is transshipped at Rotterdam from Rhine barges directly onto the steamers. A good many hides, however, come from the Dutch East Indies. Sometimes they are accompanied by consular certificates, but quite as often they have been bought and sold at auction several times before being finally destined for the United States, and it is impossible to trace their origin. Rags are shipped in small quantities, and those shipped from Rotterdam itself, I am sure, are satisfactorily disinfected.

Respectfully,

A. R. THOMAS,
Passed Assistant Surgeon, M. H. S.

The SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

GLASGOW.

REPORT OF TRANSACTIONS AT THE PORT OF GLASGOW, SCOTLAND, FOR THE FISCAL YEAR ENDED JUNE 30, 1900.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Cincinnati, Ohio, August 9, 1900.

SIR: Referring to Bureau letter (E. B. S.) (R. M. W.) of July 25, I have the honor to submit a résumé of the work of the Service at Glasgow, Scotland, from January 1 to June 30, 1900, inclusive.

The method of inspecting and certifying passengers at this port was as follows:

The continental emigrants upon their arrival in the city were taken to one of the "emigrant hotels" managed by the steamship companies, and kept there until the time of sailing.

I visited these "hotels" during the dinner hour on the day of sailing when practicable, as that was the time the emigrants could all be gotten together; all were inspected and inquiry made as to the locality from whence they came, and any among them that were not well were carefully investigated and treated accordingly.

The passengers were again inspected at the time of embarkation; this inspection also included the local passengers who did not go to the "hotels," but remained about the city, and any cases of quarantinable disease were rejected and their names and other data relating to them made note of. The inspection cards were then delivered.

If any passengers were rejected their inspection cards were destroyed and their names canceled on the passenger list.

The baggage was inspected at the docks and its origin inquired into and labeled "inspected" if passed, and if rejected was put aside for whatever treatment was considered necessary.

The baggage which I considered most likely to convey infection was the old bedding which the emigrants insist upon bringing with them, especially the Russian Jews.

I required the disinfection by steam of all this class of baggage, and personally supervised this work.

The steamship officials objected to this disinfection, as they have no facilities of their own, but are compelled to pay for the privilege of using the steam disinfectors.

I suggested to some of the officials of the Anchor and Allan lines (the only ones carrying passengers) that it would be much more convenient and economical to have their own disinfectors at the dock, but they could not be induced to look at the matter from that standpoint.

The total number of persons inspected was 5,083, none of whom had any quarantinable diseases.

One passenger was detained at my request at the last inspection for a severe abdominal pain, which appeared to be appendicitis.

During the six months bills of health were issued to 73 vessels, and 232 pieces of baggage were disinfected.

I have been informed that the steamship companies directed their agents throughout Europe to use great care in booking emigrants while this inspection was being made, and I further learned that many undesirable emigrants were advised to go by way of Canadian ports to avoid inspection.

In conclusion I wish to state that the presence of a medical officer at the port of departure makes the steamship companies much more careful about the sanitary condition of their vessels at the time of sailing.

Respectfully,

H. W. Wickes,
Passed Assistant Surgeon, M. H. S.

The Surgeon-General, Marine-Hospital Service.

BREMEN.

Report of Transactions at the Port of Bremen, Germany, for the Fiscal Year Ended June 30, 1900.

Office United States Consulate-General,
Berlin, August 18, 1900.

Sir: In compliance with instructions contained in Bureau letter of July 7 (G. R. M. W.), I have the honor to submit the following report of the transactions at the port of Bremen, Germany, beginning January 1 and ending June 30, 1900.

Arriving at Bremen on the afternoon of December 26, 1899, I reported at the American consulate early the following morning. There I found Consul Murphy temporarily in charge of the office, and thoroughly alive to the requirements of the situation and the necessity for medical supervision of emigration. He had himself already inaugurated some reforms in the methods of inspection of emigrants looking toward lessening the danger of importation of infectious diseases to America. Both he and his successor, Consul Diederich, were always valuable coworkers with me in the enforcement of the quarantine laws as applied to foreign countries.

I spent the few days intervening between my arrival and the 1st of January in examining the methods already in vogue and devising plans for their improvement. Dr. Peltzer was employed by the Lloyd Steamship Company through the consulate to inspect the emigrants, and with the ship's surgeon to administer vaccination. Considering the very large emigration through the port of Bremen, I considered this part of the work well performed.

The women and children were first brought into the room in single file, with arms exposed (always the left), and inspected as regards suspicious eruptions. Then vaccination was administered.

Special lookout was kept for trachoma and favus. If the emigrant's condition was satisfactory his card was then stamped with the seal of the consulate. When the women and children had been disposed of the men were next admitted and examined and vaccinated in the same way. No one was passed without vaccination except infants under four months of age. I inspected also as they were being vaccinated, which made three medical men present at each inspection.

In my judgment the practice of vaccination should always be conducted ashore before the sailing of the ship. This insures its being done and gives also a day or so advantage in time should smallpox occur aboard the steamer. It would be hard to imagine a more difficult task than vaccination at sea in rough weather with the patient suffering from seasickness. Another advantage of great importance is the better means afforded for inspecting the emigrants when the arm is exposed for vaccination. Frequently we detected cases of scabies and psoriasis by this means that otherwise would have escaped our attention.

The inspection and disinfection of baggage I found in a very unsatisfactory state. It was entirely under the control of an ignorant employee of the steamship company, who not only had no interest in the result to be accomplished, but being naturally lazy, was concerned in doing as little work as possible. But considering the inefficiency of the steam chamber it is just as well that so few pieces were selected as requiring disinfection. The chamber was so constructed that steam could not be applied under pressure, nor was there a method for exhausting the air before the introduction of steam. I at once urged the remodeling of the steam chamber along the lines recommended by Surgeon Wasdin on his tour of inspection. In a short time the alterations had been made and the chamber was capable of doing fairly efficient work. I required all bedding from European countries, except Germany to be disinfected. The latter was exempted on account of complete absence of epidemics of quarantinable diseases from the Empire. Smallpox is almost unknown in Germany. Baggage that was passed without disinfection was labeled "Inspected," with the name of the steamer and date of sailing. Baggage that was disinfected was labeled in a similar way "Disinfected."

Russian baggage that had been treated at the German central station on the Russian border was passed, provided it was properly labeled. An inspection of the control station at Ruhleben, near Berlin, confirmed me in my opinion that the disinfection at these stations is efficient.

The nationality of the emigrants passing through the port of Bremen is shown by the following figure of percentage:

	Per cent.
Austro-Hungarians (including Galicians)	80
Russian	13
Germans	5
Americans	2

All others, Italians, Swiss, French, etc., less than 1 per cent.

It might be of interest to compare these figures with Dr. Carrington's estimate during his tour of duty at Bremen in 1893:

	Per cent.
Germans	40
Scandinavians	15
Austro-Hungarians	20
Russians	15

It will be seen at once that there is a great falling off in the number of Germans and Scandinavians and a corresponding increase in the number of Austro-Hungarians. As the Germans and Scandinavians form our best and most desirable class of immigrants their loss is to be regretted.

Unfortunately the Lloyd steamers, the only line carrying emigrants to America, do not sail from Bremen, but depart from Bremerhaven, 35 miles distant. The emigrants were, as a rule, taken down on special trains and were immediately placed aboard ship. I always went to the steamer to make the required inspection and sign the bill of health. As a rule the Lloyd steamers were in excellent sanitary condition, and left little to be desired. Each passenger was furnished a fresh straw mattress and blanket and necessary tin eating utensils. The tin goods and blankets became the personal property of the emigrant at the end of the voyage, and the mattresses were tossed overboard at sea on the return voyage of the steamer.

There was, as a rule, a steamer with emigrants sailing to New York every Tuesday and Saturday, and one to Baltimore on Wednesday. About once monthly a steamer was dispatched to Galveston. Unfortunately these steamers to Galveston were very inferior, having been originally freight steamers of the Rickmans Line. I complained to the steamship company how unsuited they were for emigrant transportation, and they assured me that they were soon to be taken off the American line. I found it impracticable to have a muster of the ship's crew for inspection before departure. It would mean often a delay of hours for the steamer, for ships can only get out over the bar at a favorable tide. I did not feel justified in causing this loss to the company, and often delay of the mails, in view of the fact that there was no infection at the port of departure. Then, too, all the crew was under the care of the ship's surgeon, and the least suspicious case would be at once removed from the steamer. In case of freight steamers not carrying surgeons I always had a muster of the crew on deck. Steamers took on their supply of water at Bremerhaven, and its quality was good. Both Bremen and Bremerhaven remained free from quarantinable diseases.

Bremen secures her water supply from the Weser River. It is purified by sand filtration that is one of the finest in the country. No better evidence could be shown as to its efficiency than the fact that the weekly health report of the city frequently failed to show a single case of enteric fever. The general mortality was low, except during the winter, when a severe epidemic of influenza claimed many victims. It was rather surprising that a city of Bremen's commercial importance should be without a complete sewerage system. Many of the houses still use the old pail system, from which the contents are removed through the streets in wagons at regular intervals, much to the disgust of those who happen to be passing at the time. Most of the new houses have connections with the general sewer.

In regard to cargo shipped through the port of Bremen, it was in the main clean manufactured articles, as toys, woolens, linens, etc. Cement, sugar, and rice were also frequently shipped in large quantities. Inquiry failed to show that articles were ever shipped from the plague districts of South America, Asia, or Australia via Bremen to the United States. Previous to the outbreak of plague in Sydney a few articles passed through Bremen to America, but on account of the long time consumed in the voyage and reshipment at Bremerhaven it is not likely that the danger from freight could be great.

Very few rags were shipped through the port of Bremen during my tour of duty there. If this means a beginning of the cessation of the business, our country is to be congratulated. In my judgment the shipment of old rags, especially during times of threatened epidemics, should be absolutely prohibited. The methods of disinfection are, as a rule, so inadequate and uncertain that the certificates they bring are of little value.

To Consul Diederich, at Bremen, and Consular Agents Schnabel and Clemens, at Bremerhaven and Brake, I was indebted for most hearty cooperation.

I always found the Lloyd Steamship Company most courteous and willing to carry out suggestions looking to the improvement of their methods.

The following is a summary of the abstracts of bills of health, by months, showing the number of passengers inspected and detained; also the number of pieces of baggage inspected and disinfected.

Nordenham and Brake are Weser ports between Bremerhaven and Bremen.

Month.	Ships.	Steerage inspected.	Passengers rejected.	Pieces of baggage inspected.	Pieces of baggage disinfected.
January	16	5,041	15	3,769	714
February	17	6,807	36	5,086	695
March	23	11,832	48	9,402	1,247
April	15	6,918	28	7,324	797
May	22	12,188	46	11,527	1,413
June	19	6,794	17	6,590	903

All ships were dispatched from the port of Bremerhaven, except 1 at Brake, 3 at Nordenham, and 3 at Bremen.

Respectfully,

JOSEPH B. GREENE,
Passed Assistant Surgeon, U. S. M. H. S.

The SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

LIVERPOOL.

REPORT OF TRANSACTIONS AT THE PORT OF LIVERPOOL, ENGLAND, FOR THE FISCAL YEAR ENDED JUNE 30, 1900.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Philadelphia, Pa., August 3, 1900.

SIR: I have the honor to submit the following résumé report of the transactions of the Service at the port of Liverpool, England, during my tour of duty in the office of the United States consul and covering the period from January 1, 1900, to June 30, 1900. In accordance with Bureau orders of the 13th of December, 1899, I arrived at Liverpool December 31, 1899. The first week of January was spent in a general survey of the situation and the conditions under which shipments of persons and freight were made to the United States ports. The work of inspection was commenced January 8 and continued until suspended by Bureau orders on June 30, 1900.

During the six months 412 vessels cleared for ports in the possession of the United States. The majority of clearances were for ports on the Atlantic seaboard and the Gulf. but comparatively few vessels clearing for island ports or ports on the Pacific coast.

These vessels carried crews to the number of 37,352, cabin passengers to the number of 14,217, and steerage passengers to the number of 27,804.

No person was refused shipment on account of a quarantinable disease. Immigration from Liverpool consists largely of English, Irish, Scotch, and Scandinavians, and it is estimated that a considerable percentage of it is made up of persons who have previously been in the United States. Two of the largest passenger lines running to the United States from Liverpool refuse shipment to Russian and Italian immigrants, except in particular cases; thus the number of immigrants of the poorer classes is small at this port. During the six months 860 packages were steam disinfected and labeled, being the effects of 836 Russian immigrants. During the same period about 80,000 pieces of baggage were inspected and passed.

The requirement of the disinfection of baggage from infected localities made a marked difference in the amount and character of the personal effects presented for shipment by such immigrants, many having no baggage, others a few pieces of clean wash goods required upon the voyage. In this connection it would appear that the danger of the introduction of plague into the United States via Liverpool by immigrants is remote with the present requirements in regard to disinfection at Liverpool and inspection at the port of entry in the United States. There is, however, a practice in Liverpool of shipping to Canadian ports—i. e., St. John, Halifax, and Montreal, a certain class of immigrants who would probably have difficulty in landing in the United States. There is strong presumptive evidence that the ultimate destination of many of these is the United States. Disinfection of baggage is not required prior to shipment. There are apparently no restrictions at Canadian ports in regard to the admittance of diseased and undesirable immigrants, and I believe that many refused and returned immigrants ultimately make their way to the United States via Canada.

The situation in regard to freight transshipped at Liverpool for United States ports is more complex. These freights may be divided into three classes, first, from localities permanently infected, such as Calcutta, Bombay, Karachee, and ports in the Persian Gulf; second, from localities occasionally infected and always more or less suspected, such as Alexandria, Smyrna, Bushire, and Constantinople; third, from nonsuspected localities, which include England and Europe.

From the permanently infected localities the main imports consist of wool, gunnies, and hides, with an occasional shipment of food stuff, such as curry and chutnies.

From the occasionally infected localities the principal shipments consist of wool, cotton, hides, rags, figs, glass beads, and bric-a-brac. From nonsuspected localities the shipments include every article known to commerce.

The methods of inspection employed at Liverpool were as follows: For the inspection of immigrants the use of a large waiting room on the landing stage was secured, a room capable of accommodating 1,000 persons. A movable partition was placed across one end of the room, leaving a clear space sufficient in size for the work of inspection of the immigrant and the stamping of his card.

The immigrants were passed into this space singly or in family groups; advanced to a convenient table; were inspected; had their cards stamped, and passed out of the waiting room and on board of the tender lying alongside the stage. If the condition of the immigrant and the locality from which he came was satisfactory, he was passed and his baggage labeled without being opened and subjected to special inspection. If the condition of the immigrant or the locality from which he came was suspicious, he was detained for a special investigation and his baggage was subjected to special scrutiny. All cases from an infected locality were held over for disinfection of their effects, but after the first few weeks this was seldom necessary, as all immigrants from suspected localities were brought to Liverpool by the steamship agents a couple of days before the departure of the vessels upon which they were to sail, thus allowing time for special inspection and disinfection before the day of sailing. The inspection of immigrants was usually done between the hours of 9 a. m. and 12 m., the immigrants being transferred from the stage by tender to the vessel lying in the stream. The inspection of the crew and second-cabin passengers was made on board at the same time, and with the board of trade inspection at 1.30 p. m., usually. The board of trade inspection is required by British law in the case of all vessels carrying immigrants. The vessel, crew, steerage, and second-cabin passengers are all inspected.

These inspections, while in some cases perfunctory and overrapid, are in general, I think, effective. The medical inspectors are men of vast experience in such work, and the utter absence of outbreaks of quarantinable disease upon vessels passed by them is proof that their work is effective, especially considering that smallpox and typhus in a small number of cases always exists in Liverpool. No inspection was made of cabin passengers on the large passenger steamers. The inspections of small passenger and freight steamers and of sailing vessels were made in the dock as shortly before the hour of departure as possible.

The crew and passengers were mustered on deck and inspected, and a general inspection made as to the sanitary conditions of the vessel. All British vessels are visited before sailing by sanitary inspectors (laymen), who look into the general conditions of the ship as to cleanliness; in consequence British vessels at Liverpool are always in a satisfactory condition. In the case of a few Spanish and German vessels it was necessary to order a mechanical cleaning of the forecastle and water closets, but in general vessels were found mechanically clean and in good general sanitary condition. In regard to the shipment of freight the following procedure was adopted: Abstracts of the proposed cargo of each vessel leaving Liverpool for a United States port were required to be presented at the consulate at the earliest possible date. These abstracts showed the nature of the shipment and its point of origin. If from an infected locality, the article, if believed incapable of conveying infection, was passed; if believed capable of conveying infection it was either refused shipment, or disinfected, or detained for thirty days in lieu of disinfection.

Reports upon the viability of the plague organism in various articles of merchandise make it seem probable that if a period of eighty days has elasped between the date of shipment and the date of lading of a presumably infected article, that the infection has died out. Upon this theory East Indian and Persian wool, in transit for the United States was detained thirty days in Liverpool since its disinfection is commercially impossible. The subject of the disinfection of rags and hides as required by our regulations was investigated by me during my stay in Liverpool and found to be done in a satisfactory manner, the work being done under the supervision of a competent inspector in the employ of the United States consulate. In conclusion I have to acknowledge the heartiest cooperation and assistance upon the part of the United States consul and his deputies, and a cheerful willingness upon the part of the shipping interests of Liverpool to carry out all requirements of inspection and disinfection.

Respectfully,

H. S. Mathewson,
Assistant Surgeon, U. S. M. H. S.

The Surgeon-General Marine-Hospital Service.

HAVRE.

Report of Transactions at the Port of Havre, France, for the Fiscal Year ended June 30, 1900.

Office United States Consul-General,
Paris, France, August 13, 1900.

Sir: I have the honor to transmit herewith a report of my transactions at the port of Havre, France, in connection with the special precautions taken to prevent the introduction of plague into the United States.

I arrived at that port December 26, 1899, and called the next day at the United States consulate to take up my duties in connection with that office. In the absence of Mr. Thackara, United States consul, I was received by Vice-Consul J. P. Beecher, who was most cordial and did everything in his power to put me on a pleasant footing with those I should have to meet in the execution of my duties. With him I called upon M. Nicolle, commissionaire d'emigration, and upon M. Boyer, chief agent of the French Line, and his assistants, including Dr. Martin-Dupont, who is medical director and has charge of all the medical and sanitary work of the line. I also called upon the quarantine officer of the port and the director of the bureau of public hygiene, and, am happy to say, established most pleasant relations with all.

In order to avoid any future misunderstandings with the French officials, I informed the commissionaire d'emigration, who introduced the subject, that I did not wish any personal recognition, but wished to be considered as a consular officer or advisor, and being such would speak officially through the consul only. I acted on this principle in the performance of all my duties and was always promptly seconded by the United States consular officers. Any rule that required enforcing, any change in the method of inspection, or in the requirements exacted, were always prefaced by a letter from the consul stating what was required, thus obtaining the best cooperation from both French officers and steamship companies.

Shipping from Havre to the United States consists of the steamers of the Companie Generale Trans-Atlantique, or French Line, having one steamer leave for New York each Saturday, two steamers for the West Indies, and several freight steamers monthly, and various steam and sailing vessels of other companies that sail irregularly for various ports to the number of two or three per week.

On investigation of the emigrants leaving Havre for the United States I learned that all passengers from this port sail by the French Line, the steerage averaging 300 to 900 per week, according to the season of the year, the largest number being in the early spring. These passengers divide themselves for our purposes into two groups, those from beyond Marseille (Italy excepted) and collected at that city, and those not coming through Marseille, mostly from Italy, Switzerland, and France. Those from Marseille, possibly a fifth, are almost all from Syria, Turkey, Armenia, Arabia, and surrounding countries. From their uncertain origin these passengers could very possibly be propagators of plague, but owing to the time that necessarily elapses before embarking, owing to the fact that these people come to Marseille by boat, and on account of the French quarantine restrictions imposed upon them at that port, this danger was not considered prohibitive.

All steerage passengers arrive at Havre on a special train on Saturday morning, about 6 a. m., seldom more than three or four hours before the steamer sails. They were put in a large room, where first they were vaccinated or their marks passed by a physician of the French line, and then as they passed out one by one were examined for trachoma and favus by the surgeon of the ship about to sail, and for general health by the surgeon representing the commissionnaire d'emigration.

As this system already in force filled every requirement, it was modified only in details and in the thoroughness with which the work was done, the following becoming the routine: The vessel was inspected before the emigrants went on board, either the day before sailing or the same morning. The steerage quarters were always found in good condition; all woodwork scrubbed and then washed down with a solution of lysol; new mattresses, clean blankets, and sufficient air space to meet requirements of United States regulations.

On arrival of steerage passengers they were held in a group in one of the company sheds and let, about seventy-five at a time, into a room where all were vaccinated. This was entirely in the charge of the company's surgeons, who employed the lancet, three punctures in each case being the rule. After being vaccinated each person was given a yellow card with the word "vaccinated" printed upon it, which allowed him to pass the only gate in a barrier placed across the room, and where each was examined by a surgeon of the French emigration bureau, the surgeon of the ship, and myself. In this examination I endeavored to touch each one, generally feeling the neck, to examine the upper lid of all eyes looking suspicious (at least one-fifth), and to take in any other suspicious signs. In case anything thus presented itself the yellow card was taken up and the emigrant, although past the barrier, could not leave the room. All those put aside were examined by all the physicians together, generally after all others had passed, and disposition made of them. Diseases of scalp and eye thus put aside were decided upon finally by the ship's surgeon, who generally asked my advice and refused many on the strength of it, although not always. Cases of fever of over one degree I refused, as well as a few other cases that could not be clearly diagnosed. In all eleven were thus positively refused by me, and about twenty refused by the company on my advice.

The emigrant, on leaving the room armed with his yellow card and his contract, passed a few feet between barriers to the ticket office, where his name and the information required by the immigration laws were enrolled on the regular lists, and then went on board if he was not from Marseilles. If from Marseilles he was put in a pen to one side, and as soon as a number were collected together they were marched, with their hand baggage, to the disinfecting chamber, under the same shed, but some 100 yards away.

The following course was pursued regarding baggage: The company was informed that all bedding (blankets excepted), from whatever source, and all baggage of emigrants coming via Marseilles must be disinfected by flowing steam under pressure, forty minutes for large, thirty minutes for small bundles. It was then arranged that all checked bundles of bedding and all baggage checked from Marseilles was to be carried immediately from the baggage cars to the steam chamber, where the disinfection of the bedding was immediately begun and the trunks arranged in rows, to be opened each one by its owner. The rule laid down that all effects coming via Marseilles must be steamed was not carried out to the letter, as this would have been unnecessary. Clean, ironed linen was always excepted, and often a trunk containing clean clothes was passed and labeled "Inspected" when the owner was a Greek or Italian. But all trunks and bundles labeled "Disinfected" were disinfected by steam, as above stated.

Baggage of passengers not via Marseilles was inspected without opening. I had a man who labeled all trunks after seeing their origin, and who then stood at the gangway and labeled baggage carried by the passengers and stopped for disinfection any bedding thus going on board. We have thus collected as much as two steam chambers full of dirty quilts and pillows, although this does not appear in the figures given of effects disinfected.

I made no inspection of the crews of the Transatlantique Company, as it was impracticable, owing to the changes made, until the last minute, and to the fact that inspections are made by the company's directing surgeon of all the ship's company the day before and individually of any others added later.

As to other vessels sailing for the United States without passengers, requirements were not strict, as the health of Havre remained nearly always good. Inspection was made as late as possible before sailing, and the bill of health delivered at that time. All living quarters were examined, and any case of illness among the crew carefully examined. In cases of dirty forecastles or other unsanitary features the first officer's attention was called to it, directions given for remedying same, and all noted on the bill of health.

I have the honor to state that I began my inspections at Havre January 1, 1900, and continued until June 30, the last one being on that date. During that time 16,043 steerage passengers were passed after the inspection here described, and 2,204 cabin passengers were passed with gangway inspection. For these passengers there were disinfected by steam, as above described, 1,569 bundles of bedding (mattresses) and 247 trunks. No record was kept of the number of pieces inspected.

Respectfully,

S. B. GRUBBS,
Assistant Surgeon, M. H. S.

The SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

NAPLES.

REPORT OF TRANSACTIONS AT THE PORT OF NAPLES, ITALY, FOR THE FISCAL YEAR ENDED JUNE 30, 1900.

UNITED STATES CONSULATE,
Naples, Italy, August 1, 1900.

SIR: I have the honor to submit the following report of the operations of the Service at this station from November 1, 1899, to July 1, 1900:

One hundred and fifty-three vessels were inspected and passed. Two thousand and sixty-three cabin passengers were inspected and passed; the steamship companies were advised to reject two because they suffered with trachoma. Eighty-six thousand six hundred and ninety-two steerage passengers were inspected and passed; in 1,406 cases rejection was advised because the passengers would probably be prevented from landing in the United States by the immigration laws. The advice was followed in every case. Fifteen thousand eight hundred and twenty-nine pieces of baggage were inspected and passed. Nine thousand and fifty-six pieces of baggage were disinfected by steam. The steam disinfection was nearly all done at the disinfecting plant of the Italian Government. The remainder was done in the small disinfecting chambers which are found on board of all steamers that carry passengers from here to the United States. The latter method was found very unsatisfactory, because the disinfection must be done with the assistance of the crew of the vessel, and the average crew has had very little experience in this line of work. The principal danger is that the ship is liable to become infected with the material that is brought aboard for disinfection.

The only official rejections made were four cases of smallpox. Of the 1,406 rejections that were advised, the majority were for trachoma or favus; the others because they suffered from diseases or deformities the result of which would probably make them public charges.

The method of conducting the inspection is the same as described in the last annual report.

Respectfully,

VICTOR G. HEISER,
Assistant Surgeon, M. H. S.

The SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure.]

Ships, passengers, and baggage inspected July 1, 1899, to June 30, 1900.

Number of ships:	
With passengers	126
In ballast	27
Passengers inspected and passed:	
Cabin	2,063
Steerage	86,692
Passengers rejected:	
Cabin	2
Steerage	1,406
Baggage inspected:	
Large	15,829
Small	85,281
Baggage disinfected	9,056

United States Consulate,
Naples, Italy, September 17, 1900.

Sir: In accordance with instructions contained in Bureau letter (G.) (R. M. W.) of July 7, I have the honor to forward the following report of the transactions of the Service from July 1, 1900, to September 15, 1900, inclusive:

Total number of cabin passengers inspected, 562; number of rejections advised, 2; number of rejections made on advice, 2. Total number of steerage passengers inspected, 12,840; number of rejections advised, 274; number of rejections made on advice, 274. Number of pieces of baggage inspected, large, 3,330; small, 14,903; number of pieces of baggage disinfected, 736.

The above operations are confined strictly to the port of Naples.

The following additional inspections have been made whenever a ship has entered this port which is bound for the United States and has taken on passengers at ports which have been called at previously; they are inspected if it seems necessary:

Number of cabin passengers inspected, 372; number of rejections advised, none; number of rejections made on advice, none. Number of steerage passengers inspected, 1,214; number of rejections advised, 32; number of rejections made on advice, 32.

Respectfully,

Victor G. Heiser,
Assistant Surgeon, M. H. S.

The Surgeon-General Marine-Hospital Service.

SOUTHAMPTON.

Report of Transactions at the Port of Southampton, England, for the Fiscal Year Ended June 30, 1900.

Savannah, Ga., *September 19, 1900.*

Sir: In obedience to Bureau letter (R. M. W. and E. B. S.) dated July 19, 1900, I have the honor to transmit the following report of the transactions of the Service at the port of Southampton, England, during the time that I was stationed there, from January 1, 1900, to June 30, 1900.

I arrived at Southampton, England, on the 21st of December, 1899, but as there were no vessels sailing for this country till the new year, I employed the intervening ten days in getting acquainted with the ground, calling on the agents of the various steamship companies, explaining the character and extent of my work, and furnishing to them a transcript of the revised United States quarantine regulations relating to cargo, vessels, and crew. I found that three trans-Atlantic steamship companies had vessels either sailing from Southampton to the United States or calling there en route. These were the American, Hamburg-American, and the North German

Lloyd lines, and all had weekly sailings. The vessels of the former line came into dock in the city and handled both passengers and cargo. Those of the latter lines did not handle cargo, but passengers only, and anchored in Southampton water 6 miles below the city, to which point the passengers were conveyed on tenders. Owing to this fact the methods of procedure in the two cases were different, and I will describe each somewhat in detail.

The passengers who were to depart by the American line were collected as they arrived during the week at the emigrant hotel, where accommodations were provided and they were kept till the morning of sailing, Saturday. On Friday afternoon, after examining the passenger manifests, which told me the age, nativity, and origin of each emigrant, I went to the hotel, had them mustered for examination, after which each individual brought out his bundles of luggage, put them on tables provided for that purpose, and opened them for my inspection. Feathers and bedding of all kinds were invariably put aside for disinfection, no matter what was their origin.

From the manifest each time I made a list or roll of those persons coming from ports, places, or countries that were considered infected or not known to be clean, and as this roll was called each individual had to produce all of his luggage, and this, along with the feathers and bedding before mentioned, was taken to the chambers and disinfected with steam. Then all luggage was labeled either with the "Inspected and passed" label or the "Disinfected" label, as the case might be. By disinfecting on Friday no luggage was delayed except that belonging to those emigrants who arrived on Friday night or on Saturday morning just before sailing. Saturday morning at 8.30 I mustered the crew, had the roll called, and looked at each man carefully as he answered to his name or crew-list number and filed slowly by. The names or crew number of all men absent were taken and then as these men were produced or new men substituted in their places they had to be brought to me for inspection. After this I carefully inspected the compartments for the steerage and crew, paying particular attention to the condition of the ventilators, hospitals, water supply, and water-closets. I also obtained the official dimensions of the steerage compartments, calculated the number of passengers each could carry under the law, and then by counting each time I knew there was no overcrowding. After finishing the inspection of the ship I began at once to inspect the steerage passengers, all of whom had been collected in a large shed of the company, which lent itself readily to my work. As these came into the building they deposited all their hand bags, except what had already been inspected, passed, and labeled in a large compartment set apart for the purpose. In a similar compartment on the other side all the heavy luggage was collected and spread out. In these rooms, aided by a force of five men put at my disposal by the company, I inspected the luggage, having the men open everything that could possibly contain bedding. Those bundles that were rejected were placed in a room by themselves and held till the next Friday's disinfection. The others were labeled and carried on board. The passengers had in the meantime been collected in one large room, where their emigrant cards were issued to them and from which they passed through a door, one at a time, in order to have their tickets collected. Beyond this door, by means of sections of pickets, I narrowed the passageway till there could be no crowding, and the steerage had to pass in single file. Along this narrow lane I placed several stewards, whose instructions were to remove all head gear, get out all emigrant cards, and keep the crowd moving slowly but steadily by me.

In this way I had a good view of each passenger as he walked toward me over a distance of 40 to 50 feet, and could notice particularly the gait, countenance, eyes, and general expression of the face.

When the individual arrived opposite me he was stopped, made to show his card, and made to bend forward his uncovered head for examination. At the same time the glandular regions of the neck were examined by palpation, and any evidence of increase in temperature sought for. If anything at all suspicious was discovered the passenger was carried to one side, put into a small room, and kept there for further observation till all emigrants had been passed. In this way delay was avoided. After finishing the inspection these people were brought out, carefully examined, and then either allowed to go on board or rejected finally.

The same procedure was carried out with reference to the passengers and baggage for those ships that were met by tenders 4 to 6 miles down the bay. When the tenders came alongside I had the ship's surgeon meet me at the head of the gang plank, and before any one was allowed to go on board I learned from him that there was no sickness of any kind on his ship. I then went on board and had him sign a certificate to that effect, after which I issued the supplemental bill of health.

The following are the statistics of the work performed in this manner during my detail abroad:

Ships inspected	70
Steerage passengers inspected	8,603
Second cabin passengers inspected	3,090
First cabin passengers inspected	3,127
Passengers rejected	53
Pieces large baggage inspected	4,070
Pieces small baggage inspected	8,934
Pieces baggage disinfected	312
Number crew inspected	8,076

Respectfully,

W. C. Hobdy,
Assistant Surgeon, U. S. M. H. S.

The Surgeon-General Marine-Hospital Service.

Spain.

DETAIL OF COMMISSIONED OFFICERS OF THE MARINE-HOSPITAL SERVICE TO CADIZ AND BARCELONA, SPAIN, RESPECTIVELY.

On October 30, 1899, request was made of the honorable the Secretary of the Treasury to detail commissioned officers for duty in the offices of the United States consul at Cadiz and of the consul-general at Barcelona, Spain, respectively. At this time plague prevailed in Oporto, Portugal, and emigrants from Portugal to the United States or to Cuba and Porto Rico took passage at Cadiz and Barcelona, Spain.

The medical officer in command, Habana, Cuba, had invited the attention of the Bureau to the danger of transmission of plague to Cuba and Porto Rico through these emigrants, and recommended the stationing of the officers as above outlined.

The consul-general of the United States at Barcelona, Spain, in a report to the State Department dated September 27, 1899, made a similar recommendation. The State Department expressed its concurrence in this measure November 1, 1899. Accordingly, P. A. Surg. James A. Nydegger was detailed for duty in the office of the United States consul at Cadiz, and Asst. Surg. John F. Anderson was detailed for duty in the office of the United States consul-general at Barcelona.

A letter of instructions similar to the following was given to each of the officers detailed to Spanish ports:

Treasury Department,
Office of the Supervising Surgeon-General
Marine-Hospital Service,
Washington, D. C., November 6, 1899.

Sir: I inclose herewith copy of a letter bearing the approval of the President, under date of the 2d instant, in accordance with which you are hereby detailed under the provisions of section 2 of the act granting additional powers and imposing additional duties upon the Marine-Hospital Service, approved February 15, 1893, for duty in the office of the United States consul at Cadiz, Spain, and directed to proceed to that port with as little delay as possible.

Your duties will be to enforce the regulations of the Treasury Department relating to immigration and quarantine, which are provided to be observed at foreign ports by vessels bound for the United States, Cuba, and Porto Rico; to advise with the consul on sanitary matters; to furnish information to the Bureau regarding the prevalence of epidemic disease; and, in conjunction with the consul, to sign bills of health issued to vessels leaving Cadiz for ports of the United States, Cuba, and Porto Rico.

All vessels should be inspected before the bill of health is issued. You will make a written report to the Bureau at least once a week concerning your operations, and including anything which will be of interest from a sanitary standpoint.

Your salary while on duty at Cadiz will be paid by check from Washington, and the pay roll should be forwarded in ample time to reach the Bureau before the close of each month. Officers will be reimbursed for exchange paid on Treasury checks upon the receipt of exigency bills covered by subvouchers.

A weekly abstract of bills of health issued should be forwarded to the Bureau on form No. 1931, a supply of which will be sent from the Bureau to your new address.

Respectfully,

WALTER WYMAN,
Surgeon-General M. H. S.

P. A. Surg. JAMES A. NYDEGGER,
Washington, D. C.

CADIZ.

REPORT CF TRANSACTIONS AT THE PORT OF CADIZ, SPAIN, FOR THE FISCAL YEAR ENDED JUNE 30, 1900.

UNITED STATES MARINE-HOSPITAL SERVICE,
Manila, P. I., October 14, 1900.

SIR: In accordance with instructions contained in Bureau letter (G) of July 7, 1900, I beg leave to submit a brief report on the inspection work of the service as conducted at Cadiz, Spain, during a part of last winter.

The existence of bubonic plague at Oporto, Portugal, and the continued danger of it being introduced into Cuba and Porto Rico by reason of the close proximity of the infected city to ports in Spain holding direct communication with these islands, indicated the necessity of a medical inspection of passengers and their effects destined for these points.

This report embraces the period from December 21, 1899, following the date of my arrival, to February 22, 1900, at which time the epidemic was reported as having terminated and I departed for Manila.

En route to Cadiz I stopped at Barcelona and Madrid to talk over the situation with Consul-General Lay and Mr. Bellamy Storer, United States minister to Spain.

As soon after arrival as practicable, I called in turn on the civil governor of the province of Cadiz, who resides in Cadiz, the alcalde of the city, and the heads of the several steamship lines in contact with whom my duties would bring me, and stated the object of my presence there and explained the mutual advantages to be derived by having the inspection of passengers, etc., performed prior to sailing. All expressed themselves as pleased with the plans proposed, and the steamship lines assisted most courteously in the after prosecution of the work.

To obviate any misunderstanding and prevent delays, the following letter was inclosed to parties concerned:

UNITED STATES CONSULATE,
Cadiz, January 3, 1900.

To owners, masters, and agents of vessels at the port of Cadiz, and others whom it may concern:

SIRS: Your attention is respectfully invited to the law enacted by the United States Government February 15, 1893, relative to immigration and quarantine, and which is now in force at this port.

Any information concerning the regulations under the law may be obtained at the United States consulate, No. 10 Alameda de Apodaca.

As it is required that all vessels, at the original port of departure, prior to taking in cargo for any port of the United States, Cuba, and Porto Rico, be cleansed in all parts, you are requested to notify this consulate to that effect, so that the inspection may be performed before the cargo is taken on board.

In order to prevent unnecessary delay to vessels, and to facilitate the work of the medical inspector, notice must be given to the consulate in each case, in writing, of the sailing date, and if possible not less than twenty-four hours beforehand, and facilities furnished the medical inspector for the inspection of the passengers, baggage, crew, and vessel.

Respectfully, yours,

J. A. NYDEGGER,
Passed Assistant Surgeon, U. S. M. H. S.

The Compania Trans-Atlantica Line, the principal carrier of passengers between Spain and the West Indies, kindly placed a room in one of their buildings on the dock at my disposal. In it the examination of the passengers was made. No unusual measures were adopted in carrying this on, as the small number examined and certified did not seem to demand any measure beyond the average observation. The following was the mode of procedure: First was ascertained from what part of Spain a passenger came, and whether he had recently been in or near Portugal or had communicated with anyone recently from there. Following the verbal examination came the examination of the cedula, a governmental receipt for head tax, issued at the place of residence, and its comparison with his previous verbal statements. Next followed the physical examination for the existence of any defect, presence of disease, and evidences of recent vaccination or attack of smallpox. A record of all requiring vaccination was kept by the ship's surgeon present, and performed upon going on board. But a small percentage required it. The majority were protected by previous vaccination or attack. The examination finished, the inspection card was issued and the passenger passed in turn to the baggage room adjoining.

There the baggage was opened, inspected, and labeled. As a rule the steerage carried but little baggage, contained in one small trunk or valise, and it was found to be clean and free from food articles. By an agreement with the steamship companies passengers were not furnished with transportation until after the inspection was completed both as to person and baggage. The inspection card was required to be presented.

There were no facilities for the disinfection of baggage, etc. Baggage requiring disinfection was rejected. Fortunately this action was necessary in but one instance. Owing to the lightness of travel to the West Indies the companies were opposed to the establishment of any facilities to meet an emergency of this character.

Passenger vessels were inspected twice, if practicable. First, upon arrival; second, just before sailing. The first inspection was for the purpose of ascertaining the sanitary condition of the vessel, capacity, and overcrowding, if any, and hospital accommodations, etc., so that if any changes had to be made they could be performed while the cargo was being handled, thus obviating the delay at the last moment before sailing.

Just before sailing a general inspection was made on board, including the crew and all cabin and steerage passengers, regardless of where from or for where bound. At this inspection the inspection cards of all were required to be exhibited and checked to ascertain that the number actually on board corresponded with the number accounted for in the bills of health. In this way all passengers from other Spanish ports, and continental ports as well, including those embarked at Cadiz, were finally inspected before sailing.

There was considerable travel to the Canaries from Cadiz, including some small detachments of troops.

Having observed that the air space in the steerage compartments of some of the vessels was inadequate and less than the amount required, the following letter was addressed to those concerned:

UNITED STATES CONSULATE,
Cadiz, January 22, 1900.

GENTLEMEN: Referring to circular letter of the 3d instant from this office, relative to the United States regulations to be complied with by vessels sailing from this port for ports in the United States, Cuba, and Porto Rico, I desire to call your attention to the requirements in this respect as applies to the amount of cubic air space which shall be allowed for each steerage or third-class passenger, as also the ventilation of said compartments, and to advise you that after due time has been allowed to make the necessary changes in vessels the regulations will be strictly enforced.

Respectfully, yours,

J. A. NYDEGGER,
Passed Assistant Surgeon, U. S. M. H. S.

These requirements were being complied with at the time of my departure from Cadiz.

Following is a statement of the work performed:

Vessels inspected and furnished bills of health	10
Passengers inspected from Spanish ports other than Cadiz	390
Passengers inspected embarking at Cadiz	327
Passengers inspected from other continental ports	53
Passengers rejected	0
Pieces of baggage inspected and passed	63
Pieces of baggage disinfected	0
Pieces of baggage rejected	1
Crew inspected	654

In the number of passengers from Cadiz 254 were booked for the Canaries, and some 53 from continental ports were bound for the west coast of South America.

No special measures were used to prevent the reinfection of baggage while en route. This was found impracticable. Steerage passengers are not usually provided with a large wardrobe, and where the voyage is of some duration, as in this case, they are obliged to resort at frequent intervals to their trunks or valises for clean garments. In the case of cabin passengers it is different. Containers may be inspected and labeled so that any interference will break the seal, be placed in the hold of the vessel and not disturbed until the destination is reached.

I may state here that but two of the passengers taking passage at Cadiz came from points anywhere near Portugal, and they readily proved their places of residence by the cedulas.

In conclusion, I desire to state I was accorded most courteous consideration by all whom I came in contact with in the performance of my duties, and especially by the officials of the Spanish Transatlantica Steamship Line.

Respectfully submitted.

J. A. NYDEGGER,
Passed Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

BARCELONA.

REPORT OF TRANSACTIONS AT THE PORT OF BARCELONA, SPAIN.

CONSULAR SERVICE, U. S. A.,
Vienna, Austria, August 11, 1900.

SIR: In obedience to Bureau letter of July 7, 1900, I have the honor to submit the following report of the Service transactions at the port of Barcelona, Spain:

I assumed charge of Service matters in Barcelona December 2, 1899, and closed them April 18, 1900. During that time there were inspected 41 vessels, 2,018 crew, 467 cabin passengers, 710 steerage passengers, 952 pieces of large and small baggage inspected and labeled, 10 pieces of baggage disinfected by steam, 9 passengers rejected for various causes. On my arrival I issued a circular to the steamship agents explaining what would be required of passengers, baggage, and vessels, and suggested a meeting with them at the consulate. Representatives of each line were sent to the consulate, and after I had fully explained what I wished, all promised their full cooperation, which I am glad to say was given, with few exceptions.

There are four regular lines sailing from Barcelona to the West Indies and the United States. They are the Spanish Trans-Atlantic Company, the J. Jover Serra Company, the M. Pinillos Company, and the Izquierdo Company. The ships of the first two lines are fitted fairly well for the passenger traffic, but the ships of the last two are nothing more than freight ships, with bunks put up according to the number of passengers. Besides these there are tramp steamers and sailing ships. The Trans-Atlantic Company has one ship each month to the Philippines.

My method of procedure was as follows: On the morning of sailing I inspected vessel and provisions; after doing this I inspected the baggage in the company's shed; I had all baggage opened and threw out all food; then the baggage was labeled and at once put aboard by lighter; no special precautions were taken to prevent reinfection, as none was believed to exist in the first place. The disinfection, when done, was by steam, but only 10 pieces were disinfected during the entire time. An hour before the departure of the ship, which was always in the afternoon, I inspected the steerage passengers and second-cabin passengers on the dock. As I passed each person his card was stamped. On account of the small number of passengers this inspection was very easy and simple. The number of rejections was very few, as nine-tenths of the emigrants were young males of from 15 to 30 years of age, going to the islands for work on the plantations. They were physically a fine lot. After completing the inspection of the passengers I went aboard and inspected the crew. I always had the roll called and inspected each man as he passed me. I then issued the bill of health. In a few cases the ship was not clean when I made the morning inspection, and upon a warning being given I found her at the afternoon visit spick and span.

A check was had on the previous residence of the passenger by means of the official "cedula," which the Spanish Government requires every person to have and which is stamped within twenty-four hours after arrival in a place. The greater number of the passengers from Barcelona came from the Balearic Islands and the remainder from the province of Catalonia, in which Barcelona is situated. The freight from Barcelona consists chiefly of wine, liquors, cotton goods, earthenware, onions, shoes, gloves, preserved fruits, olive oil, olives, and goatskins.

A short time after my arrival I addressed a letter to the mayor, requesting that I be furnished with semimonthly reports of the sanitary condition of the city. I received a polite reply that the health of the city was "satisfactory," but should any contagious diseases occur I would be promptly notified. Just before I was relieved, on account of the prevalence of smallpox, I wrote him again on the same subject, and added that unless I was furnished with the desired information I would be compelled to note on the bills of health issued that I was unable to obtain the information from the city authorities. The reports were furnished regularly shortly after this. The city authorities resented my presence from the time of my arrival until I was relieved.

Barcelona in cleanliness compares very favorably with the large cities of the United States. The water supply is poor in quality and lacking in quantity. There is much typhoid fever. Smallpox is present all the time and in the month of March became almost epidemic.

After the disappearance of the plague in Oporto I did not think that the presence of an officer in Barcelona was of much real good, as all of the ships after leaving Barcelona touched at Malaga, Alicante, Cadiz, and the Canaries. From the latter place they received the larger number of their passengers. For this reason the inspection of passengers in Barcelona alone can never be effective, as the persons rejected in Barcelona can easily take ship in one of the other ports named. The larger part of the emigration from Spain is from Santander, Corunna, and Vigo, on the northern coast. In regard to the ports on the northern coast I respectfully refer to my reports to the Bureau of date December 16 and December 29 and request that the same be added to this report as covering a part of Spain.

I inclose a form which the consuls in the different ports were to transmit to me every two weeks; this scheme had just been put in operation when I was relieved from duty in Spain; also a vaccination certificate that was issued to cabin passengers at the request of the steamship companies when the smallpox became so prevalent; also a leaf from my record book.

Respectfully,

JOHN F. ANDERSON,
Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

MARSEILLE, FRANCE.

With the decline of plague in Oporto the medical officer on duty at Barcelona was transferred to Marseille, France.

REPORT OF TRANSACTIONS AT THE PORT OF MARSEILLE, FRANCE.

CONSULAR SERVICE U. S. A.,
Vienna, Austria, August 11, 1900.

SIR: In obedience to bureau letter of July 7, 1900, I have the honor to submit the following report of the Service transactions at the port of Marseille, France. In accordance with instructions, this report covers the period of Assistant Surgeon Corput's duty at Marseille, which ended April 20, 1900.

Service work was begun by Assistant Surgeon Corput the first of January, and was closed by me the 30th of June, 1900. During that period there were inspected 64 vessels; 1,790 crew; 26 passengers; 30 pieces of baggage inspected and labeled; no rejections and no disinfection of baggage. Assistant Surgeon Corput superintended the disinfection of 2 steamers in ballast to New York after having discharged cargoes in Marseille from India. There are only two regular lines from Marseille to the United States—the Cyprian Fabre Line and the Anchor Line—neither line, as a rule, carrying passengers from Marseille, but both stop at Italian ports for cargo and passengers. The number of tramp steamers from Marseille is considerable; they are usually in ballast to the States. The chief duty of an officer in Marseille is the supervision of the disinfection of rags, hair, skins, and hides. The arrangement for the disinfection of rags was put up under the supervision of Surgeon Irwin, and, needless to say, is complete. About 50 bales can be disinfected at one time. The hides and skins were disinfected by immersion in carbolic-acid solution.

Marseille is without exception the dirtiest town I have ever been in. The streets are most filthy, and noisome odors greet one at every turn. Powdered sulphur is sprinkled in the drains, but without doing much good. The water supply comes in chief part from the river Durance, but the quality is bad; even the Marseillaise will not drink it. During the early spring the smallpox was epidemic. At one period there were over 300 cases reported, and probably there were as many more not reported.

Remarks.—Of the very positive value of the foreign inspection service I am well convinced, but believe that except in times of epidemic it should be in force only at ports from which there is much emigration. By this work we keep out not only epidemic diseases, but favus, trachoma, and many scalp and skin diseases. Aside from this it gives the officers a variety of duty, allows them an opportunity to see something of foreign quarantine and sanitary methods, and it brings the service to the notice of many who were ignorant of it before. The great defective link in it is the lack of federal control of quarantines. If this were not the case, then the work of the officers abroad would be thoroughly upheld and supported by those at home.

In conclusion, I have the pleasure to say that Mr. Lay, the consul-general at Barcelona, and Mr. Skinner, the consul at Marseille, gave me all the assistance in their power, and were ever ready to cooperate with me when needed. My relations with them both were most cordial, and both expressed regret at the closing up of service matters at their respective ports, and my thanks are due them for many courtesies.

Respectfully,

JOHN F. ANDERSON,
Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

SERVICE TRANSACTIONS DURING OUTBREAK OF PLAGUE IN GLASGOW, SCOTLAND.

Upon the receipt of information that plague had appeared at Glasgow, P. A. Surg. A. R. Thomas was immediately ordered to that port from London and detailed by order of the President in the office of the United States consul. Acting Assistant Surgeon Hough was also ordered to Glasgow for duty. Assistant Surgeons Anderson and Bahrenburg were ordered to Liverpool for the purpose of preventing the transmission of the infection from Glasgow to the United States via Liverpool.

The following are the orders issued to Dr. Thomas at Glasgow:

WASHINGTON, *September 1, 1900.*

THOMAS, *Glasgow:*

Wire name and port destination each vessel for United States on day departure.

WYMAN.

WASHINGTON, *September 1, 1900.*

THOMAS, *Glasgow:*

Secretary Canadian department agriculture requests you inspect Allan and Donaldson steamers sailing for Canada until their officer arrives. You are authorized to comply with his request. Arrange through consul. Nominate temporary acting assisting surgeon if necessary. Keep record expenses for reimbursement. Hough ordered to you.

WYMAN.

SEPTEMBER 5, 1900.

SIR: Referring to Bureau telegram of this date, as follows:

"Make four freight classes: First, free list; second, inspection and certificate; third, disinfection and certificate; fourth, debarred. Have certificates presented with manifest when you inspect vessel, thus showing exact state cargo. Disinfect baggage of Glasgow steerage, but all transit and Glasgow cabin baggage may pass for present. While Greenock remains noninfected, ship disinfection not necessary if vessels avoid Glasgow. Vessels arriving healthy with your bill as above will receive pratique at New York and Service stations. Caution shipping that Glasgow crews will jeopardize pratique. See also foreign regulations, articles 5 and 9. Letter follows."

It is desired to explain to you, so that there may be no mistake, the full meaning of this telegram. You should make a classification of all freight leaving the city of Glasgow, obtaining as a result of this classification, four lists—one, a list of articles which may be shipped without any interference; two, a list of articles prior to the shipment of which the shippers must obtain your sanction, and the inspection alluded to in this second list does not necessarily mean that you shall see the article itself, but you shall have the privilege of ascertaining the history of the article in question and its whereabouts, etc., sufficiently to satisfy yourself that you are justified in issuing a certificate to the effect that this article may be shipped without detriment; third, disinfection and certificate, which means that all articles under this third class shall be disinfected in a manner which will justify you in certifying that this disinfection has been done in a satisfactory manner, and in compliance with the regulations of the Marine-Hospital Service, and therefore that the shipment is authorized; and fourth, a debarred class, which is such because disinfection can not be properly done, and therefore the articles in this class should not be shipped.

You should notify all shippers that the papers issued by you of these classes must be on board the ship and accompanied by the manifest when you arrive on board to make your final inspection before the ship sails. You should then inspect the manifest and satisfy yourself by this inspection that no article appears on said manifest which does not belong to one of the first three classes, and a bill of health should not be issued to the vessel which violates the provisions of this arrangement.

With regard to the disinfection of baggage, it appears at the present time that only such baggage as originates in Glasgow and belongs to the steerage passengers will need disinfection, and unless the infection in the city becomes more general it is probable that this will be sufficient. All cabin baggage originating in Glasgow may be inspected to such extent as may be necessary to justify you in passing it, and the same provision will apply to baggage of all classes which arrives in transit and is carried directly to the ship without stopping in the city of Glasgow.

So long as the city of Greenock remains noninfected there appears to be no necessity for the disinfection of ships which have avoided Glasgow and both discharged and received cargo and passengers at Greenock, such ship disinfection being apparently necessary only in the case of vessels which may have become infected by actual sickness on board, or which may have been the recipients of vermin, rats, etc.

It is therefore incumbent upon you to caution all shipping interests in the city that it will be to their advantage to apply these rules, as they will thereby avoid much trouble and expense upon arrival in the United States. They should be especially cautioned against allowing their crews ashore in Glasgow, as the presence on board vessels of crews which have been in that city just before the ship sails will jeopardize the value of the bill of health, and may possibly cause detention of vessels.

If you are able to carry out the provisions of this telegram, vessels receiving your bill of health, with the statement on it to that effect, will be given pratique upon their arrival at New York, at all of the Service stations, and very possibly at other stations which have not as yet communicated with the Bureau.

Respectfully,
WALTER WYMAN,
Surgeon-General, M. H. S.

P. A. Surg. A. R. THOMAS,
United States Marine-Hospital Service.
(Care United States Consulate-General, Glasgow, Scotland.)

WASHINGTON, *September 7, 1900.*

THOMAS, *Glasgow:*

Arrange ship surgeons to record temperatures steerage and crew last day at sea and deliver to quarantine officer. In reporting sailings state Glasgow or Greenock.

WYMAN.

WASHINGTON, *September 12, 1900.*

THOMAS, *Glasgow:*

If practicable, have funnels placed on hawsers of vessels loading for United States.

WYMAN.

NOTE.—At the close of this report, September 15, 1900, Passed Asst. Surg. A. R. Thomas is still on duty in Glasgow.

EGYPT.

COLLECTION AND DISINFECTION OF EGYPTIAN RAGS DESTINED FOR THE UNITED STATES.

As mentioned in the last annual report of the Service, the presence of bubonic plague in Alexandria and continuous rumors of its existence at other points in Egypt made it desirable to have an investigation made regarding the importation of rags from Egypt to the United States. Accordingly, the medical officer of the Service at Naples, Italy, was directed, October 5, 1899, to proceed on this mission.

Following are two reports from this officer on the above-named subject:

REPORT ON THE INSPECTION OF THE METHODS OF SHIPPING RAGS AT CAIRO AND ALEXANDRIA.

NAPLES, ITALY, *December 14, 1899.*

SIR: In pursuance of Bureau orders of October 23, 1899 (F. L. G.), directing me to proceed to Cairo and Alexandria, Egypt, in order to investigate the manner of collecting, disinfecting, baling, and shipping rags to the United States, directly or indirectly, I have the honor to report that I proceeded to Cairo on November 15, reaching there on the night of the 19th.

The next morning I called at the United States consulate and found Vice Consul-General William Dulaney Hunter in charge.

On stating the object of my mission he informed me that he had no personal knowledge whatever about the disinfection of rags, except to legalize the certificates of disinfection. He explained that he had only been in charge of the office about five months and did not wish to interfere with the work of his superior officer. He, however, referred me to Mr. Chassaud, who acts as secretary at the consulate and attends to the disinfection. (This is the same gentleman who has been previously referred to in the annual report of 1893, by Surgeon Irwin and Dr. Kempster, being at that time stationed at Alexandria.) Mr. Chassaud placed himself at my disposal, and rendered me much assistance in my investigations.

NUMBER OF SHIPPERS IN CAIRO.

Mr. Isaac Salaama is the only shipper who exports rags. There are many smaller merchants, but they either sell to Mr. Salaama or to a shipper in Alexandria.

CHARACTER OF RAGS.

Many of the rags collected in Egypt are not rags in the ordinary acceptation of that term, but consist of the cast-off garments which are peculiar to the natives; these garments perhaps resemble a bed sheet more than anything else.

ORIGIN AND MANNER OF COLLECTING.

The rags which are shipped from Cairo are all gathered in the southern portion of Upper Egypt, coming from all the villages and towns in this district.

The collectors go from house to house and collect the rags, paying for them usually with some eatable—beans being the most common form of payment.

Contagious diseases are said often to exist in these smaller villages which do not come to the notice of the sanitary authorities, and in such cases there is ample opportunity for infection to be conveyed by the rags which come from these districts. The sanitary officer at Alexandria is alive to this danger and has issued the regulations which I append. These have a tendency to lessen the danger at any rate.

The collectors of rags sell them to the rag merchants which are found in nearly every village.

MANNER OF SHIPPING.

The rag merchant sends the rags to either a shipper in Cairo or Alexandria, in what are technically known as "nets." These nets are made of tarred rope and are of such size as to contain from 50 to 100 pounds of rags. The nets are used over and over again for this purpose. They are supplied by the shipper. Some few rags are shipped by rail, but the bulk of them are sent by canal.

ASSORTING.

On the arrival of the rags at the shippers they are removed from the nets and classified into "whites," "colored," and "woolen." At the establishment of Mr. Salaama about 25 "sorters" are employed; most of these either suffer from purulent ophthalmia or trachoma.

DISINFECTION.

Mr. Salaama has two establishments. One is located centrally and receives the rags that come by rail, and the other is about an hour's drive from the central portion of the city, situated on the bank of the Nile, and receives the rags that come by boat. At this latter establishment was found a disinfecting room of the crudest type imaginable. The room was 9.2 by 33.4 meters; constructed of rough boards; cracks and openings seemed to exist everywhere; the doors fitted badly, there being as much as 8 to 10 centimeters space between them and the casings. Mr. Chassaud stated that he would not permit the disinfection to take place with the room in this condition. He explained to me that the recent rain had caused the boards to spring out of shape. * * *

This room contained four tracks on which were placed trucks whose base was large enough to contain three trays, whose size was 1.30 by 1.20 by 0.15. These trays were constructed of wood with lattice bottoms, piled up upon one another to the height of five rows, there being 10 cm. space between the top of the rags and the bottom of the tray above. The rags were found piled to the regulation height of 15 cm. The proportion of rags to air space in the room was about 1 to 6.

At the other establishment a room was found which was in about the same condition as the one described above. It was smaller, however, containing only two trucks. The proportion of rags to air space in this room was about 1 to 5.

The proprietor was ordered to repair the rooms, which he promised to do by the next day. We called at the appointed time but the room was yet far from tight. The day after we called again and found the room fairly tight, but the repairs were all of a temporary nature, consisting mostly of old bagging being stuffed into the openings.

Mr. Chassaud said the man was very poor and had not the means to build a good room; he thought, however, that a better room than the present one could be had.

In these establishments 5 pounds of sulphur per 1,000 cubic feet of space were being used. On being informed that this amount must be increased in order to compensate for leakage, he held up his hands in holy horror and said that the present strength of sulphur was already ruining his rags, and that an increase would make them worthless. (On inquiring about this matter later at Alexandria, I was informed by the shippers that they never knew their rags to be spoiled by sulphur.)

The progress of the combustion of the sulphur could be well watched through a small pane of glass in the wall of the room. There was no seal of any kind placed upon the door. Mr. Chassaud stated that he had implicit confidence in the man's honesty.

Late one afternoon the sulphur fire was started, and after the room had been closed I noticed that there were some flies and fleas on the inside of the pane of glass referred to above. On returning the next morning I noticed some very active flies on the inside of the glass. This proved one of two things, either that the sulphur had not been of sufficient strength, or that the doors had been opened and the flies gained admission. As the rags seemed to be well impregnated with sulphur, and on examining the pane of glass a number of dead flies and fleas were seen which about corresponded to the number observed on the day previous; so that it would seem that the doors must have been opened during our absence.

MANNER OF BALING AND MARKING.

After the disinfecting is completed the trucks are hauled out and the trays of rags are emptied into the press.

The bales are marked—

I. S. DISINFECTED. No. ———.

EGYPT.

The stamp is in possession of the shipper. Mr. Chassaud stated he knew how many bales could be disinfected at one time and in this way could see that the number of bales disinfected corresponded with the invoices.

SUGGESTIONS.

It was suggested to the vice-consul-general that a seal be placed on the door during the time of disinfection, using preferably the wire and lead seal, the same to be under his control.

That he assure himself that the room is in proper condition and that the stencil for marking the disinfected bales be kept under his control in order to prevent its misuse. He asked to have this placed in writing.

ALEXANDRIA.

On the night of November 22 I arrived at Alexandria. The next morning I called upon the consular agent, Mr. James Hewat, who very courteously rendered me much assistance. Mr. Hewat informed me that he had nothing whatever to do with the disinfection of rags, that being entirely controlled from the consul-general's office at Cairo.

A fee of 4 piasters (20 cents) is charged for each bale disinfected.

Mr. John Monteseni, a clerk in the counting house of Mr. Hewat, represents the consul-general in this matter.

Butterworth & Smalley, L. Onofrio, and Melahem Braha & Co. are the shippers at Alexandria.

MANNER OF COLLECTING AND ASSORTING.

This process is the same in Alexandria as in Cairo. The rags that find their way to Alexandria are collected throughout the whole of upper Egypt.

DISINFECTION.

The establishment of L. Onofrio was first visited. The disinfecting room was found tight, the rags were spread on wire racks to a depth not to exceed 15 cm. There was a space of at least 60 cm. between the racks. The proportion of rags to air space was about 1 to 64. The rags after being disinfected were piled into a corner until ready for the press. Here they could easily become contaminated with infected rags. It was suggested that a platform with a proper inclosure be constructed. This Mr. Onofrio promised to do. About 60 "sorters" are employed in this establishment.

The next establishment visited was that of Butterworth & Smalley. The room was found in poor condition. Although there were no glass windows, when the room was supposed to be in condition for disinfection there was light enough in the room to read a newspaper. The rags were piled to a depth of 1 to 2 feet. The racks were constructed of wood, with lattice bottoms, and placed about 2 feet apart, the room being high enough to admit of four tiers of racks. It was suggested to the man in charge, Mr. Winstanley, that disinfection of this kind was contrary to the regulations of the United States. He promised to have the room repaired and ready for inspection on November 29. On this day I called and found that the cracks had been calked with oakum and tar, making the room fairly tight. The rags on the racks, however, averaged a foot in depth. Mr. Winstanley promised to remedy this, stating that it was very difficult to get the natives to make so radical a change all at once. No seals of any kind were used on the doors.

Mr. Montesini was asked why he permitted this condition of affairs. He stated that he was gradually bringing about a change for the better, that when he took charge about five months ago, rags were piled on the floor and other things were committed which were contrary to the regulations.

AMOUNT OF RAGS EXPORTED.

On examining the records of the United States consulate it was found that 3,631 bales of rags were shipped to the United States in the six months commencing with May, 1899.

There being practically only three seaports in Egypt from which goods are exported viz, Suez, Port Said, and Alexandria, and there being no rags exported from Suez or Port Said, it remained necessary to examine only the records of the custom-house of Alexandria.

In these records it was found that for the six months previously mentioned 2,762,807 kilos were exported. The weight of a bale of rags varies between 272 and 317 kilos, taking a conservative average would show that about 9,000 bales had been exported.

The names of shippers are not recorded. On inquiring about the number of rag shippers, I was assured from several sources that there were only two. These were asked whether they would have any objection to stating the number of rags they exported during the six months mentioned. They stated that there was no objection, and furnished me with figures which footed up to about 5,000 bales. This left still 4,000 bales to be accounted for. After a diligent search the firm of Melahem Braha & Co. was discovered. They stated that they had been in business only a few months and had shipped 450 bales to Liverpool last August. They stated that they had not yet sold any rags in the United States, but were anxious to do so, and inquired very minutely into the details of constructing a sulphur chamber. Further investigation shows that with the exception of a few hundred bales of woolen rags which are sent to France and are said to enter into the manufacture of shoddy, and a few hundred bales which are sent to the paper mills in England direct, practically all the rags yet to be accounted for went to Liverpool and from there probably found their way into the United States. In this case they should have had a certificate of disinfection from Liverpool before being permitted to enter the United States.

OLD BAGGING.

Practically all the old bagging which is not actually used to bale rags with in Egypt is sent to Leghorn, Italy. Here it is used principally for packing marble. This bagging is not disinfected, and, considering its source, is liable to convey infection to the United States when it is sent with the marble.

THE PLAGUE AND ITS RELATION TO RAGS.

The plague has been well confined to Alexandria, and is now practically stamped out there.

The measures taken to prevent the spread of infection were very elaborate and carried out in a most scientific manner, so that unless the plague makes its appearance in towns outside of Alexandria there is little danger to be apprehended from the plague through rags.

Careful investigation fails to reveal that the plague has existed in Egypt outside of Alexandria, except in one instance, in which the rigid measures taken stamped it out at once.

Respectfully,

VICTOR G. HEISER,
Assistant Surgeon, U. S. M. H. S.

[Inclosure.]

SECOND ANNEX TO THE REPORT OF THE MUNICIPAL COMMISSION, APRIL 28, 1899—REGULATION OF TRAFFIC IN RAGS IN THE CITY OF ALEXANDRIA.

[Translated from the French at this Bureau.]

CHAPTER I.—*Importation of rags from the interior of the country to Alexandria—Distribution of rags in the city.*

1. Rags obtained from the interior of the country shall be transported directly, without any intermediate stoppage, to the warehouses of the exporters or manufacturers of paper, etc., duly authorized. In case of a threatened epidemic the entry of said rags may be prohibited.

2. The transportation to the warehouse shall be made in bags, barrels, or sealed netting, in such a manner as to avoid any scattering of the rags. If inclosed in netting, the vehicles used in transportation shall be covered with packing cloth or awnings. Rags unpacked or loose shall not be admitted into the city.

If the rags arrive by boat, care shall be taken that they are not dipped into the canal, the water of which might so be contaminated.

3. The customs officers shall be ordered to carry out the measures above indicated, and to peremptorily refuse entry to consignments which do not conform to the requirements of these regulations.

CHAPTER II.—*Collection of rags in the city.*

4. The public are forbidden to enter the municipal depots of street sweepings established at Moharren Bay, the Gabarri, or any other place, to search for rags. The service of maintenance shall have charge of the execution of this measure.

5. The refuse which is strictly necessary to the heating of the public baths shall be furnished to the proprietors or lessees of these establishments, unless they neglect to conform to the instructions given them for the hygienic maintenance of the baths by the sanitary inspector. In case of a threatened epidemic the issuance of street sweepings to the public baths shall be immediately suspended. Proprietors and lessees of baths are forbidden to collect street refuse on their own account.

6. The sorting of rags at the baths and their sale in the city, whether by the patrons or servants of these establishments, are formally prohibited. Proprietors and lessees shall be held responsible for the carrying out of this measure.

CHAPTER III.—*Storage of rags in small depots.*

7. Proprietors or lessees of rag depots shall be provided with special authorization and shall be under the permanent supervision of the municipal sanitary service.

8. This authorization shall be suspended without delay or notification in case of a threatened epidemic.

9. Rags shall be stored only on the ground floor, which shall not be in communication with dwelling houses or apartments.

10. The floors of these depots shall be constructed of stone, cement, asphalt, or other material approved by the sanitary service.

11. Rag depots shall consist of at least two compartments. The place where the rags are sorted must be distinct from that in which they are stored. In this latter compartment the rags shall be properly baled, as required by article 2. Scattering of the rags on the floor of the compartment is forbidden. The sorting must absolutely be carried on in the compartment designated for this purpose.

12. Spreading of rags on the public way to dry or for any other purpose is strictly forbidden. Rags found on the public ways shall be seized and destroyed without indemnification to the owners, who shall, moreover, be held guilty of infraction of the law.

13. In order to carry out the improvements in the technique of handling rags herein indicated, the proprietors of warehouses now in operation in the city shall be accorded a delay of sixty days from the publication of these regulations in the official journal. At the expiration of this period every rag depot which does not conform to these regulations shall be immediately closed.

CHAPTER IV.—*Warehouses for the pressing and exporting of rags.*

14. Rags shall not be transported from the depots to the warehouses and packing places of rag exporters unless properly baled as required by article 2 of these regulations.

15. The opening of bags, barrels, etc., filled with rags shall take place only in the interior of the warehouses; it is absolutely forbidden on the public street.

16. Proprietors or managers of warehouses of exportation are subject to articles 7, 8, 10, 11, 13, and 14 of the present regulations. Sorting must also be done in a distinct compartment.

17. Rags once received at a warehouse of exportation can not be removed to any place in the city except in pressed bales or else entirely enveloped in packing cloths.

18. The proprietors or managers of the presses are required to remove, as rapidly as possible, the dust raised in the manipulation of the rags, with the aid of a system of ventilation arranged according to the recognized rules of hygiene.

19. Proprietors or managers of rag presses are required to place at the disposal of their workmen the necessary means of cleansing themselves after work. They should be furnished water and soap gratuitously and in sufficient quantity.

CHAPTER V.—*General regulations.*

20. In case of a threatened epidemic, the commerce in and transportation and manipulation of rags shall be suspended, without any delay or notification from the sanitary authority.

21. All infractions of the present regulations shall be punished conformably with article 33, general penal code, and 341 of the native penal code, without prejudice to the closing or suppression of the establishments, which may be ordered by the judge as he shall judge fit.

22. Infractions may be stated by the sanitary inspector, district physicians, and officers and agents of police.

23. The present regulations shall go into effect thirty days after their publication in the official journal, under reservation of the period of delay fixed by article 14.

U. S. CONSULATE,
Naples, Italy, January 23, 1900.

SIR: I have the honor to acknowledge the receipt of Bureau letter (F. L. G.) January 2 instant, which directs that I furnish a further report on the method of invoicing rags by the United States consuls in Egypt.

The United States consular officers issue invoices for all rags whose ultimate destination is the United States, or, in other words, an invoice is issued whenever the shipper produces a bill of lading which, among other things, shows that the address of the consignee of the rags is in the United States. Almost all of the rags which are sent from Egypt are transshipped at a European port, Liverpool being the port where this transshipment is most frequently done. It is a very rare thing for rags to be carried to the United States direct.

The consular officers do not consider it their business to know whether the rags change vessels en route to the United States, although as a matter of fact they are aware that a change takes place.

The great bulk of the rags of Egypt are sent to Liverpool and there sold to the highest bidder. While in Alexandria I learned that the firm of Butterworth & Smalley, who themselves are large shippers of rags, buy many Egyptian rags in Liverpool.

On examining the records of the consulates in Egypt it was found that the number of certificates of disinfection issued corresponded with the quantity of rags invoiced.

In summing up the matter, it would appear that the invoicing is fairly satisfactory. To guard against fraud the principal thing is to see that on the arrival of the rags in the United States the certificates of disinfection correspond with the invoices and to make sure of the genuineness of the certificates themselves.

Respectfully, yours,

VICTOR G. HEISER,
Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

AMENDMENTS AND ADDITIONS TO THE QUARANTINE REGULATIONS OF THE UNITED STATES.

RESTRICTIONS UPON THE IMPORTATION OF BONE DUST AND BONE MEAL FROM BOMBAY.

The medical officer of the Marine-Hospital Service on duty in Glasgow, Scotland, transmitted to the Bureau a specimen of bone dust which had been shipped from Bombay to the United States via Glasgow. This specimen was subjected to an examination in the hygienic laboratory of the Service, and, based upon the results of said examination, the honorable the Secretary of State was requested to notify the United States consuls in Europe and in India that such cargo should not be shipped, as there was danger of the importation of plague into the United States by same. In accordance therewith the following circular was issued by the State Department:

QUARANTINE REGULATIONS IN REGARD TO BONE DUST.

DEPARTMENT OF STATE,
Washington, D. C., April 21, 1900.

To the consular officers of the United States in Europe:

This Department is informed by the Secretary of the Treasury, under date of the 11th instant, that bone dust or bone meal is being shipped from Bombay, a port infected with bubonic plague, to the United States via Liverpool, Glasgow, and perhaps other ports in Great Britain and on the Continent of Europe. It has been found that the material is capable of carrying infection, and should not, therefore, be shipped at the present time.

You will so inform shippers and be governed accordingly.

THOS. W. CRIDLER,
Third Assistant Secretary.

On June 28, 1900, the above order was modified in so far as to permit the shipment of dry bone dust which had been away from infected districts sixty days.

This information being given to the State Department, the following circular was issued:

IMPORTATIONS OF BONE DUST.

DEPARTMENT OF STATE,
Washington, July 20, 1900.

To the consular officers of the United States.

GENTLEMEN: Referring to the Department's circular instruction of April 21, 1900, by which the importation of bone dust is prohibited on account of the danger of communicating plague, I have to inform you that the Treasury Department, in a letter of June 28, 1900, states that dry bone dust which has been away from an infected district for sixty days may be shipped to the United States with safety.

You may therefore certify invoices covering this commodity when it has been away from a plague-infected district sixty days, but not otherwise.

I am, gentlemen, your obedient servant,

DAVID J. HILL,
Assistant Secretary.

PREVENTION OF THE INTRODUCTION OF PLAGUE INTO THE UNITED STATES AND ITS DEPENDENCIES.

Plague having made its appearance in Europe and South America, from whose ports there is direct communication with the United States, and being known to exist in epidemic form in India, parts of China and Japan, as well as at other places, it became necessary to establish an additional safeguard by the promulgation of the amendments to the quarantine regulations to be found in Department Circular No. 143, dated December 8, 1899 (see Public Health Reports, December 15, 1899), and Department Circular No. 6, dated January 16, 1900 (see Public Health Reports of January 26, 1900).

REGULATIONS REGARDING RAGS IMPORTED INTO THE UNITED STATES.

Information was received regarding possible attempts to import rags into the United States without conforming to the requirements of the United States quarantine regulations. To avoid this and to insure uniformity of action on the part of the various quarantine officers and collectors of customs, the following regulations were issued, after submission to the State Department for approval:

[1900.—Department Circular No. 18.]

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., February 14, 1900.

To officers of the Treasury Department, State and local quarantine officers, and others concerned:

The following amendments to the regulations regarding rags and similar articles imported into the United States are hereby promulgated:

QUARANTINE REGULATIONS TO BE OBSERVED AT FOREIGN PORTS AND AT SEA.

Article IV, paragraph 6, Quarantine Regulations to be Observed at Foreign Ports and at Sea, is amended to read as follows:

"All rags and textile fabrics used in the manufacture of paper and for other purposes, which are collected, packed, or handled in any foreign port or place, with the exceptions as hereinafter specified, shall, prior to shipment to the United States, be subjected to disinfection by one of the prescribed methods. (Old jute bags, old cotton bags, old rope, new cotton or linen cuttings from factories, not included.)

"The disinfection of the articles mentioned herein shall be performed under the supervision of a United States consul or a medical officer of the United States, and a certificate in duplicate, signed by said consul or medical officer shall be issued with each consignment of same, which certificate shall identify the articles and state that they have been disinfected in accordance with the United States quarantine regulations. The original certificate of disinfection shall be attached to the consignee's invoice, and where the articles are carried by sea the duplicate certificate of disinfection shall be attached to the bill of health issued to the vessel conveying same."

Exception.—Such articles shipped from the Dominion of Canada directly to the United States shall be exempt from this requirement if accompanied by affidavits demonstrating to the satisfaction of the collector of customs at the port of arrival that they have actually originated in Canada and have not been shipped from a foreign country to Canada and thence shipped to the United States; and, further, that the port or place where collected or handled has been free from quarantinable disease for thirty days prior to shipment.

QUARANTINE REGULATIONS TO BE OBSERVED AT PORTS AND ON THE FRONTIERS OF THE UNITED STATES.

Article I, paragraph 3, Quarantine Regulations to be Observed at Ports and on the Frontiers of the United States, is amended to read as follows: "In making the inspection of a vessel the bill of health and clinical record of all cases treated during the voyage, crew and passengers' lists and manifests, and when necessary the ship's log shall be examined. The crew and passengers shall be mustered and examined and compared with the lists and manifests, and any discrepancies investigated. When a freight manifest shows that rags and other articles of this class are carried by the vessel, a certificate of disinfection, signed by a United States consul or a medical officer of the United States, shall be exhibited and compared with same.

"If no certificate of disinfection is produced, the collector of customs at the port of entry shall be notified of same by the quarantine officer. The collector of customs shall then hold such consignment in a designated place separate from other freight pending the arrival of the certificate of disinfection; and in the event of its nonarrival the articles shall be disinfected as hereinbefore prescribed, or shall be returned by the common carrier conveying the same."

ARTICLE XII.—*Canadian and Mexican frontiers.*

The following paragraph is hereby added to Article XII, relating to rags arriving at ports on the Canadian frontier:

Paragraph 12. Rags gathered and baled in Canada, accompanied by affidavits that the ports or places where collected or handled were free from quarantinable disease for thirty days prior to shipment, may be admitted to entry; but rags from foreign ports shipped through Canada shall not be admitted to entry unless they are accompanied by a certificate of a United States consul or medical officer of the United States that they have been disinfected in accordance with the United States quarantine regulations.

Foreign rags not originating in Canada, but shipped through Canada to ports in the United States, will not be permitted to entry by collectors of customs unless accompanied by the above-named certificate, or until after they have been unbaled and disinfected as required by the United States quarantine regulations.

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

Approved.

O. L. SPAULDING,
Acting Secretary.

DECISION REGARDING SHIPMENT OF WOOL TO THE UNITED STATES FROM KURRACHEE, INDIA.

The United States Quarantine Regulations require that wool coming from a district where plague prevails shall be refused shipment until thirty days have elapsed since last exposure, unless unpacked and disinfected as provided by said regulations.

It was learned that the United States consul in Liverpool was in the habit of holding such merchandise in the warehouse in that city for thirty days before shipment to the United States, and, as this was deemed to be in conformity with the regulations, the Secretary of State was requested, January 2, 1900, to instruct the consuls accordingly.

BILLS OF HEALTH.

BILLS OF HEALTH ISSUED TO VESSELS BOUND FOR PORTS IN THE POSSESSIONS OR DEPENDENCIES OF THE UNITED STATES.

When maritime quarantine in the possessions and dependencies of the United States was placed under the control of the Marine-Hospital Service, there was found to be the same necessity for bills of health in the case of vessels bound for ports in said possessions or dependencies as in the case of vessels bound to ports of the United States. Therefore the State Department was requested to issue instructions to this effect to the United States consuls. In accordance with this request the State Department issued the following circular:

BILLS OF HEALTH FOR PORTS IN POSSESSION OF THE UNITED STATES.

DEPARTMENT OF STATE, *Washington, February 1, 1900.*

To the consular officers of the United States at seaports.

GENTLEMEN: Referring to the circular of February 8, 1899, by which you were instructed that bills of health are required for vessels sailing for certain ports in Cuba, Porto Rico, and the Philippines, I have now to inform you that under the decision of the Treasury Department, in a letter of the 20th ultimo, a vessel sailing from a foreign port to any port in the possession of the United States is required to have a bill of health in duplicate.

You will so inform the masters of vessels about to depart for such ports.

I am, gentlemen, your obedient servant,

THOS. W. CRIDLER,
Third Assistant Secretary.

BILLS OF HEALTH ISSUED IN CUBA TO VESSELS BOUND TO COUNTRIES OTHER THAN THE UNITED STATES AND ITS DEPENDENCIES.

The medical officer in command, Habana, Cuba, reported to the Bureau September 16, 1899, that it was the custom at that station to issue bills of health to vessels leaving Habana for countries other than the United States and its dependencies where such bill of health was requested by the master of the vessel, no fee being charged for same. Many vessels leaving Habana desired to take such a bill of health, and, under the circumstances, the matter was approved and instructions issued to each of the division officers in Cuba in order that the same form of bill of health might be issued at the various ports upon request. Following is the form used:

CUBA.—BILL OF HEALTH.

UNITED STATES MARINE-HOSPITAL SERVICE,
OFFICE OF THE QUARANTINE OFFICER,
Port of Habana, Cuba, ——— —, *1—.*

Name of vessel, ——— ———; captain, ——— ———; nationality, ———; rig, ———; tonnage, ———.

Bound from ——— ——— to the port of ——— ———.

Number of cases and deaths from the following-named diseases during the past two weeks at this port.

Diseases.	Number of cases.	Number of deaths.	Remarks.
Yellow fever			
Asiatic cholera			
Cholera nostras or cholerine			
Smallpox			
Typhus			
Plague			
Relapsing fever			

Given under my hand and seal this —— day of ———, 1—.

——— ———,
Quarantine Officer, U. S. M. H. S.

REGARDING IRREGULARITIES NOTED ON BILLS OF HEALTH ISSUED AT VARIOUS PORTS.

The attention of the Secretary of State having been invited to various irregularities noted upon bills of health issued at certain foreign ports, the following circular was issued by the State Department regarding same:

Bills of Health.

Department of State,
Washington, October 17, 1899.

To the Consular Officers of the United States.

Gentlemen: At the request of the Secretary of the Treasury, communicated to this Department in a letter of the 11th of September last, your attention is invited to paragraphs 375 to 378, inclusive, of the Consular Regulations in regard to issuing bills of health. Under the act of February 15, 1893, a vessel clearing from a foreign port for a port in the United States should procure from the consul of the United States at such port an original bill of health in duplicate, and subsequently at each port touched en route to the United States a supplemental bill of health in duplicate. The original bill of health is in all cases to be procured from the port of original clearance for the United States. Sickness occurring on board a vessel while en route from the port at which the original bill of health was issued should be noted upon the bill of health as having so occurred on board the vessel, and not as sickness in the port touched by the vessel.

Forms of bills of health (Form No. 1931a) and of supplemental bills of health (Form No. 1931a1–2) may be obtained at the Department upon requisition therefor.

Copies of the quarantine laws and regulations are, or should be, on file in the various consular offices, and the greatest care should be taken to faithfully execute their provisions.

I am, gentlemen, your obedient servant,

Alvey A. Adee,
Second Assistant Secretary.

Inspection of Alien Immigrants arriving at Ports of the United States and its Dependencies.

The number of alien immigrants entering the United States during the fiscal year ended June 30, 1900, was 448,572. Wherever practicable, medical examination of these immigrants was made by medical officers of the Marine-Hospital Service.

On December 2, 1899, the Commissioner-General of Immigration informed the Bureau of the desire that the medical inspection of immigrants be made wherever possible by officers of the Marine-Hospital Service as provided by law. The Commissioner-General of Immigration was requested to furnish the Bureau with a list of all ports in the

United States at which immigrants land. Following is the list received from the Commissioner-General of Immigration:

List of places at which immigrants enter the United States.

Baltimore, Md.
Boston, Mass.
Barnstable, Mass.
Brunswick, Ga.
Galveston, Tex.
Gloucester, Mass.
Jacksonville, Fla.
Key West, Fla.
Mobile, Ala.
New Orleans, La.
New York, N. Y.
New Bedford, Mass.
Norfolk, Va.
Newport News, Va.
Philadelphia, Pa.
Providence, R. I.
Provincetown, Mass.
Palm Beach, Fla.
Portland, Me.
Portland, Oreg.
Port Townsend, Wash.
Pensacola, Fla.
San Francisco, Cal.
San Diego, Cal.
Savannah, Ga.
Tampa, Fla.
Tacoma, Wash.
Wilmington, Del.
Wilmington, N. C.
Miami, Fla.

In accordance with the request of the Immigration Bureau, instructions were issued to the officers on duty at the following-named ports to inspect all alien immigrants arriving at said ports, when so requested by the resident immigration official or the collector of customs at said ports, namely:

Astoria, Oreg.
Baltimore, Md.
Boston, Mass.
Brunswick, Ga.
Eagle Pass, Tex.
El Paso, Tex.
Galveston, Tex.
Gloucester, Mass.
Jacksonville, Fla.
Key West, Fla.
Laredo, Tex.
Mobile, Ala.
New Bedford, Mass.
New Orleans, La.
Newport News, Va.
New York, N. Y.
Norfolk, Va.
Pensacola, Fla.
Philadelphia, Pa.
Portland, Me.
Portland, Oreg.
Port Tampa, Fla.
Port Townsend, Wash.
Providence, R. I.
San Diego, Cal.
San Francisco, Cal.
Savannah, Ga.
Seattle, Wash.
Tacoma, Wash.

A few of the places mentioned by the Commissioner-General of Immigration in the list given by him were not included in the orders issued by the Bureau, for the reason that no medical officer of the Marine-Hospital Service is stationed at said ports.

NEW YORK.

REPORT OF IMMIGRATION INSPECTION AT THE PORT OF NEW YORK, N. Y.

United States Immigration Service,
Medical Division, Barge Office,
New York, N. Y., August 10, 1900.

Sir: I have the honor to inclose herewith the report of the transactions of this station for the fiscal year ending June 30, 1900.

This report has also been submitted to the Commissioner of Immigration, port of New York.

Respectfully,

L. L. Williams,
Surgeon, M. H. S.

Supervising Surgeon-General Marine-Hospital Service,
Washington, D. C.

Diseases and injuries.	Remaining from previous year.	Received during the year.	Total to be accounted for.	Discharged.			Died.	Remaining under treatment.	Deported.
				Recovered.	Improved.	Not improved.			
Pulmonary œdema		1	1				1		
Pneumonia, lobular		1	1	1					
Pneumonia, lobar		92	92	60	1		26	5	
Broncho-pneumonia		3	3				3		
Pleurisy, acute		8	8	8					
Pleurisy with effusion		2	2	2					
Empyema		1	1			1			1
Alveolar abscess	1	19	20	20					
Abscess, mastoid		3	3	3					
Nasal polypus		1	1			1			
Ozæna, fetid		1	1			1			
Tonsillitis, acute		9	9	9					
Abscess of tonsil		2	2	2					
Inflammation of stomach		12	12	11				1	
Inflammation of stomach and intestines		9	9	5			4		
Ulcer of stomach		1	1			1			1
Effects of seasickness		20	20	20					
Inflammation of intestines		6	6	5			1		
Appendicitis	1		1				1		
Hernia		3	3	2		1			
Constipation		5	5	5					
Colic		1	1	1					
Cirrhosis of liver		2	2			1	1		1
Peritonitis		1	1				1		
Inflammation lymph, glands of groin		4	4	4					
Suppuration lymphatic glands of neck		1	1	1					
Nephritis, acute		2	2			1		1	
Nephritis, chronic		2	2			2			2
Ulcer of penis		3	3	2				1	
Abscess of scrotum		1	1			1			1
Orchitis		2	2	2					
Endometritis		1	1			1			1
Prolapsus uteri		1	1		1				
Inflammation of vagina		4	4	4					
Pregnancy	1	16	17	2	15				5
Vomiting of pregnancy		2	2	2					
Parturition	1	1	2	2					
Effects of childbirth		28	28	28					
Effects of abortion	1	2	3	3					
Post-partum hemorrhage		1	1	1					
Inflammation of female breast		1	1					1	
Necrosis bones of hand		1	1	1					
Necrosis bones of thumb		2	2	2					
Inflammation of knee-joint		1	1	1					
Hip-joint disease		1	1			1			
Lumbar abscess		1	1	1					
Inflammation of bursa patellæ		2	2	2					
Inflammation connective tissue:									
Neck		2	2	2					
Arm		3	3	3					
Hand		5	5	4				1	
Leg		4	4	3				1	
Abscess of scalp		2	2	2					
Abscess connective tissue:									
Forehead		1	1	1					
Eye lid		4	4	4					
Face		6	6	6					
Cheek		7	7	7					
Abscess lachrymal duct		1	1	1					
Smallpox		7	7	6			1		
Chicken pox		6	6	6					
Measles	8	220	228	210			13	5	
Scarlet fever	1	16	17	9			6	2	
Influenza		1	1	1					
Diphtheria		13	13	12			1		
Cerebro-spinal meningitis	2	14	16	3			11	2	
Simple continued fever		1	1	1					
Enteric fever		14	14	10			3	1	
Beri-beri		2	2		2				
Malarial fever		32	32	31		1			
Malarial cachexia		6	6	4	1		1		
Erysipelas		1	1				1		
Tubercle of lung	2	25	27		2	20	5		16
Tubercle of kidney		1	1			1			1
Tubercular glands of neck		1	1			1			
Tubercle of bone		1	1			1			

Diseases and injuries.	Remaining from previous year.	Received during the year.	Total to be accounted for.	Discharged.			Died.	Remaining under treatment.	Deported.
				Recovered.	Improved.	Not improved.			
Syphilis, secondary	......	7	7	1	3	3	......	......	4
Gonorrhea	......	2	2	2	......	......	......	......	....
Lumbricoids	......	3	3	3	......	......	......	......	....
Scabies	2	13	15	15	......	......	......	......	....
Ringworm of face	......	7	7	7	......	......	......	......	....
Favus	2	30	32	2	......	28	......	2	24
Scurvy	......	1	1	......	......	......	......	1	....
Rheumatism	......	17	17	10	1	5	......	1	5
Cancer of uterus	......	1	1	......	......	1	......	......	1
Anæmia	......	2	2	1	1	......	......	......	....
Debility	......	49	49	44	2	2	......	1	1
Old age	......	5	5	......	......	5	......	......	....
Inflammation of nerves	......	1	1	1	......	......	......	......	....
Hydrocephalus	......	2	2	......	......	1	1	......	....
Cerebral hemorrhage	......	2	2	......	......	2	......	......	2
Hemiplegia	1	1	2	......	......	2	......	......	1
Paralysis, partial	......	1	1	1	......	......	......	......	....
Epilepsy	......	3	3	......	1	1	......	1	1
Hysteria	......	2	2	1	1	......	......	......	....
Insanity	......	2	2	......	......	2	......	......	2
Mental deficiency	......	1	1	......	......	1	......	......	1
Conjunctivitis:									
Acute	......	96	96	95	......	......	......	1	....
Purulent	......	2	2	2	......	......	......	......	....
Granular	5	289	294	3	......	289	......	2	262
Keratitis	1	22	23	21	......	......	......	2	....
Ulcer of cornea	......	14	14	10	3	1	......	......	....
Opacity of cornea	......	1	1	......	......	1	......	......	....
Staphyloma	......	2	2	......	2	......	......	......	....
Iritis	......	11	11	11	......	......	......	......	....
Dislocation of lenses	......	1	1	......	......	1	......	......	....
Myopia	......	1	1	......	......	1	......	......	....
Abscess lachrymal sac	......	1	1	1	......	......	......	......	....
Inflammation middle ear	......	7	7	7	......	......	......	......	....
Valvular disease of heart:									
Aortic	1	2	3	......	......	3	......	......	2
Mitral	1	19	20	......	4	16	......	......	9
Disordered action of heart	......	1	1	......	1	......	......	......	....
Laryngitis, chronic	......	1	1	......	......	1	......	......	....
Bronchitis:									
Acute	......	32	32	31	......	......	......	1	....
Chronic	......	5	5	......	3	2	......	......	2
Abscess connective tissue:									
Neck	......	9	9	9	......	......	......	......	....
Axilla	......	3	3	3	......	......	......	......	....
Arm	......	1	1	1	......	......	......	......	....
Hand	......	3	3	3	......	......	......	......	....
Thumb	......	2	2	2	......	......	......	......	....
Abdomen	......	2	2	2	......	......	......	......	....
Œdema legs	......	1	1	1	......	......	......	......	....
Urticaria	......	1	1	1	......	......	......	......	....
Eczema	......	7	7	7	......	......	......	......	....
Impetigo	......	4	4	4	......	......	......	......	....
Prurigo	......	1	1	1	......	......	......	......	....
Sycosis	......	8	8	8	......	......	......	......	....
Seborrhea of scalp	2	1	3	3	......	......	......	......	....
Frost bite of toes	......	1	1	1	......	......	......	......	....
Ulcer skin of legs	......	3	3	3	......	......	......	......	....
Boils of face	......	7	7	7	......	......	......	......	....
Carbuncle of neck	......	2	2	2	......	......	......	......	....
Lupus	......	1	1	......	......	1	......	......	....
Strain, muscles of thigh	......	1	1	1	......	......	......	......	....
Scald of face	......	2	2	2	......	......	......	......	....
Scald of arm	......	2	2	2	......	......	......	......	....
Wound of scalp	......	4	4	4	......	......	......	......	....
Wound of forehead	......	3	3	2	1	......	......	......	....
Concussion of brain	......	1	1	1	......	......	......	......	....
Contusion of face	......	1	1	1	......	......	......	......	....
Wound of face	......	3	3	3	......	......	......	......	....
Wound of ear	......	1	1	1	......	......	......	......	....
Contusion of chest	......	2	2	1	......	......	......	1	....
Contusion of elbow	......	1	1	......	......	......	......	1	....
Contusion of hand	......	2	2	2	......	......	......	......	....
Wound of hand	1	18	19	19	......	......	......	......	....
Wound of finger	......	4	4	3	......	......	......	1	....
Fracture of clavicle	......	1	1	1	......	......	......	......	....

Diseases and injuries.	Remaining from previous year.	Received during the year.	Total to be accounted for.	Discharged.			Died.	Remaining under treatment.	Deported.
				Recovered.	Improved.	Not improved.			
Fracture of humerus	......	3	3	3	......	......	......	......	....
Fracture of radius	......	1	1	......	1	......	......	......	....
Fracture of ulna (olecranon)	......	1	1	1	......	......	......	......	....
Fracture of forearm, both bones	......	1	1	1	......	......	......	......	....
Dislocation of humerus	1	......	1	1	......	......	......	......	....
Contusion thigh with blood tumor	......	1	1	......	......	......	......	1	....
Contusion of knee	......	1	1	1	......	......	......	......	....
Sprain of ankle	......	3	3	2	1	......	......	......	....
Wound of thigh	......	4	4	4	......	......	......	......	....
Wound of leg	......	3	3	3	......	......	......	......	....
Wound of foot	......	1	1	1	......	......	......	......	....
Wound of toe	......	1	1	1	......	......	......	......	....
Fracture of femur	......	5	5	2	......	1	......	2	....
Fracture of tibia	......	2	2	1	......	......	......	1	....
Fracture of fibula	......	1	1	1	......	......	......	......	....
Fracture of tibia and fibula, old	......	1	1	......	......	......	......	1	....
Amputation of thigh	......	1	1	1	......	......	......	......	....
Infancy	1	41	42	40	......	......	2	......	....
Observation	1	255	256	253	......	......	......	3	....
Accompanying	7	393	400	388	......	......	......	12	7
Total	44	2,160	2,204	1,612	47	406	83	56	353

U. S. Immigration Service, Port of New York,
Medical Division,
July 1, 1900.

Summary of hospital transactions for fiscal year ending June 30, 1900.

Number of patients in hospital at beginning of year		44
Number of patients admitted to hospital during the year		2,160
Total treated:		
Men	886	
Women	632	
Male children	384	
Female children	302	
		2,204
Births:		
Male	5	
Female	3	
		8
Deaths:		
Men	26	
Women	14	
Male children	26	
Female children	17	
		83
Number of pay patients treated during the year		2,112
Number of free patients treated during the year		92
Number of days treatment for pay patients		22,905
Number of days treatment for free patients		1,810
Total number of days treatment for hospital cases		24,715
Average daily attendance in hospital		67.7
Number of patients in hospital at the end of year:		
Men	18	
Women	18	
Male children	11	
Female children	9	
		56

Detailed report of hospital transactions.

Hospitals.	On hand at beginning of year.	Admitted during year.	Total.	Recovered.	Improved.	Not improved.	Died.	Remaining at end of year.	Deported.	Days treatment.
Health department	14	392	406	375			21	10		7,296
Immigrant wards, Long Island College Hospital	30	1,768	1,798	1,829	47	406	62	46	353	17,419

Average number of days treatment in each hospital.

Health department hospitals	18
Immigrant wards, Long Island College Hospital	9.7
Rate of mortality, exclusive of accompanying statement	4.6

Nationality of patients treated.

Nationality.	Men.	Women.	Children.		Total.
			Male.	Female.	
Ireland	30	42	4	3	79
West Indies		1			1
Turkey	4	1	2	2	9
England	7	8	7		22
Wales	1				1
Scotland	2	1			3
Germany	41	43	29	13	126
France	2	3		1	6
Russia	210	142	104	84	540
Switzerland	1	1		3	5
Sweden	11	17	2	3	33
Norway	14	8	2	2	26
Holland	7	3	3	1	14
Italy	217	147	112	98	574
Roumania	20	16	9	4	49
Portugal	11	10	5	12	38
Spain	1		2		3
Denmark	2	5	4	4	15
Hungary	55	34	7	11	107
Austria	114	79	48	40	281
Bohemia	1	4	2	2	9
Finland	22	13	6	3	44
Syria	50	39	24	16	129
Armenia	21	9	7		37
Greece	34	4	2		40
Belgium	5	2	2		9
Bulgaria	1				1
Japan			1		1
Brazil	1				1
Peru	1				1
Total	886	632	384	302	2,204

Deported on medical certificates.

Disabled immigrants from hospital	353
Disabled immigrants (not hospital cases)	385
Insane immigrants from hospital	2
Insane immigrants (not removed from ships)	26
Idiot (not hospital case)	1
Grand total	767

Work of the medical examiners.

Number of steerage passengers inspected upon arrival	366,963
Of these there were physically examined and sent to hospital	2,068
Rejected and sent before the board for action	2,403
Recorded (minor defects)	15,625
Number of landed cases applying for relief	265

Of these there were physically examined and sent to hospital	92
Certified for deportation and remained in city awaiting return	64
Treated in dispensary (out relief)	3
Rejected (no case for medical division)	106
Number of cabin passengers inspected upon arrival	133,639
Of these there were—	
Rejected (certified to)	80
Recorded (minor defects)	749

Balance sheet.

To health department, for care and maintenance of contagious cases	$14,592.00	By bills rendered steamship companies		$31,205.20
To Long Island College Hospital, for care and maintenance of noncontagious cases	13,958.50	Paid from immigrant fund:		
To burials (contagious and noncontagious cases)	1,531.00	Care and maintenance of sick immigrants	$1,648.80	
To transportation of contagious cases	1,149.00	Transportation of sick immigrants	85.50	
To transportation of noncontagious cases	1,755.00	Burial of deceased immigrants	46.00	
To car fare, ferriage, etc	93.18	Car fare, ferriage, etc	93.18	
To medical supplies	201.72	Medical supplies	201.72	
To meals furnished officers and clerk, Marine-Hospital Service	838.70	Salaries	5,764.18	
To subsistence furnished officer and messenger, U. S. Immigrant Service	387.00	Subsistence	387.00	
To salaries of officers, clerk, and messenger, U. S. Immigrant Service	5,764.18	Meals	838.70	
				9,065.08
To salaries of officers, clerk, and attendant, U. S. Marine-Hospital Service	10,661.78	Paid by U. S. Marine-Hospital Service:		
To commutation for quarters of officers, U. S. Marine-Hospital Service	1,496.87	Salaries	10,661.78	
		Commutation for quarters	1,496.87	
				12,158.65
	52,428.93			52,428.93

BOSTON.

REPORT OF IMMIGRATION INSPECTION AT THE PORT OF BOSTON, MASS.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Port of Boston, Mass., July 20, 1900.

SIR: In accordance with paragraph 646, Regulations U. S. Marine-Hospital Service, 1897, I have the honor to make the following report of immigrants inspected at this port during the fiscal year ended June 30, 1900.

Respectfully,

FAIRFAX IRWIN,
Surgeon, Marine-Hospital Service.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

Month.	Number inspected.	Number rejections.	Cause of rejection.
July	1,255	20	Rheumatism, 1; general debility, 1; senility, 7; abscess, 2; pregnancy, 1; hernia, 1; idiocy, 2; blepharitis, 1; angular curvature of spine, 1; favus, 3.
August	1,557	12	Kyphosis, 1; deaf mute, 2; trachoma, 1; senility, 2; lacerated wound of face, 1; abscess, 1; eczema, 1; tumor, 1; paraplegia, 2.
September	2,367	28	Trachoma, 2; syphilis, 2; insane, 1; loss of leg, 1; ulceration of cornea, 1; opacity of cornea, 2; adhesion of lower lid to cornea, 1; ptosis, 1; stye, 1; conjunctivitis, chronic, 1; squint, 3; blind one eye, 1; iritis, 1; dislocation of hip, old, 1; inflammation of hip joint, tubercular, 1; club foot, congenital, 1; loss of finger, 1; tracheotomy, still wears tube, 1; impediment of speech, 1; angular deformity of spine, 1; pregnancy, 2; inflammation of connective tissue of face, 1.
October	2,033	12	Trachoma, 2; opacity of cornea, 2; cataract, 1; synechia, post, 1; blind one eye, 1; varix, 1; loss of leg, 1; anchylosis, knee, 1; pregnancy, 1; seasickness, 1.
November	818	0	
December	366	10	General debility, 1; senility, 1; pneumonia, 1; iritis, 1; ulceration of cornea, 1; cataract, 2; blind one eye, 2; goiter, 1.
January	271	8	Pneumonia, 1; bronchitis, 1; senility, 1; ulceration of cornea, 1; pregnancy, 3; seborrhœa, 1.
March	296	4	Poor physique, 1; blind one eye, 2; pregnancy, 1.
April	1,802	16	Blind one eye, 4; cataract, 1; trachoma, 1; influenza, 1; chlorosis, 2; curvature of spine, 1; deformity of leg, 1; pregnancy, 5.
May	3,025	9	Trachoma, 4; chlorosis, 3; deformity of leg, 1; pregnancy, 1.
June	1,852	3	Tubercle of lung, 1; pregnancy, 2.
Total	15,642	122	

PHILADELPHIA.

STATEMENT OF THE NUMBER OF IMMIGRANTS EXAMINED AT THE PORT OF PHILADELPHIA, PA., DURING THE FISCAL YEAR ENDING JUNE 30, 1900.

Total number of immigrants inspected	16,127
Number passed	16,030
Number certified as physically unsound	97
Disposition of those certified as physically unsound:	
Number of cases pending at beginning of year	0
Number certified as physically unsound	97
Total to be accounted for	97
Number refused admission	28
Number admitted	70
Number cases pending at close of year	0

BALTIMORE.

INSPECTION OF IMMIGRANTS AT BALTIMORE, MD., DURING THE YEAR ENDED JUNE 30, 1900.

PORT OF BALTIMORE, MD., *July 2, 1900.*

SIR: In accordance with paragraph 646, regulations Marine-Hospital Service, I have the honor to make the following report of immigrants inspected at this port during the fiscal year ending June 30, 1900:

Month.	Number inspected.	Number rejected.	Cause of rejections.
July	1,786	0	
August	1,777	3	1 anchylosis, 1 loss of leg, 1 loss of arm.
September	1,878	1	Senility.
October	1,784	1	Goitre.
November	2,674	6	4 senility, 1 goitre, 1 anchylosis.
December	1,199	0	
January	668	4	2 trachoma, 2 favus.
February	2,067	0	
March	3,206	0	
April	4,144	0	
May	4,415	0	
June	1,939	0	
Total	27,537	15	

Respectfully,

GEO. PURVIANCE,
Surgeon, U. S. M. H. S.

PORT TOWNSEND.

IMMIGRANTS INSPECTED AT PORT TOWNSEND, WASH., FROM NOVEMBER 1, 1899, TO JUNE 30, 1900.

PORT TOWNSEND QUARANTINE,
Port Townsend, Wash., July 7, 1900.

SIR: I have the honor to make the following report of inspection of immigrants inspected at this port from November 1, 1899, to June 30, 1900: Number of immigrants inspected, 7,225; number of immigrants passed, 7,215; number of immigrants rejected, 10; number of immigrants deported, 10.

Respectfully,

M. H. FOSTER,
Assistant Surgeon, U. S. M. H. S.

PORTLAND.

IMMIGRANTS INSPECTED AT PORTLAND, ME., DURING THE FISCAL YEAR ENDED JUNE 30, 1900.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Port of Portland, Me., July 7, 1900.

SIR: In conformity to paragraph 646 of the Regulations of the Marine-Hospital Service, I have the honor to forward a résumé of the inspection of immigrants at this port for the fiscal year ended June 30, 1900:

Total number inspected	3,356
Passed at once	3,343

Held for observation and later passed:	
Measles	3
Chronic purulent conjunctivitis	1
Smallpox	1
Smallpox suspects	4
Total number passed	3,352
Deported:	
For insanity	1
For favus	3

Respectfully,

S. D. Brooks,
Surgeon, Marine-Hospital Service.

Supervising Surgeon-General Marine-Hospital Service,
Washington, D. C.

REPORT OF INSPECTION OF ALIEN IMMIGRANTS ARRIVING AT THE PORTS OF CUBA DURING THE FISCAL YEAR ENDED JUNE 30, 1900.

HABANA.

Marine-Hospital Service,
Office of Medical Officer in Command,
Habana, Cuba, July 25, 1900.

Sir: I have the honor to submit the following report of the inspection of immigrants at this port for the fiscal year ended June 30, 1900:

I beg to state first that the inspection of immigrants was commenced November 1, 1899.

Total number of immigrants inspected	16,031
Total number of immigrants passed	16,019

The following number were rejected and returned:

Favus	2
Partial blindness	1
Total blindness	1
Cataract	3
Goiter (frail physique)	2
Acarus scabiensi	1
Old age	1
Trachoma and blepharitis marginalis	1
Total number returned	12

Respectfully,

A. H. Glennan,
Surgeon, U. S. M. H. S., Chief Quarantine Officer for the Island of Cuba.

Supervising Surgeon-General Marine-Hospital Service,
Washington, D. C.

MATANZAS.

Office of Medical Officer in Command,
Marine-Hospital Service,
Matanzas, Cuba, July 26, 1900.

Sir: Referring to Bureau letter of the 9th instant, I have the honor to submit herewith report of inspection of immigrants at this port and subports in my division for he fiscal year ended June 30, 1900:

	Matanzas.	Cardenas.	Isabela de Sagua.	Caibarien.
Total number of immigrants inspected	4	None.	5	None.
Number passed	4	None.	5	None.
Number admitted	4	None.	5	None.
Number rejected	None.	None.	None.	None.

Respectfully,

G. M. Guiteras,
Passed Assistant Surgeon, U. S. M. H. S.

Supervising Surgeon-General Marine-Hospital Service,
Washington, D. C.

CIENFUEGOS.

MARINE-HOSPITAL SERVICE,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Cienfuegos, Cuba, August 9, 1900.

SIR: In reply to your letter dated Washington, D. C., July 9, 1900, I have the honor to forward the following report regarding the inspection of immigrants at this port and subports in this district for the fiscal year ending June 30, 1900:

Cienfuegos:	
Inspected	352
Passed	352
Rejected	0
Total	352
Casilda, inspected	0
Santa Cruz del Sur, inspected	0
Tunas de Zaza, inspected	0
Total	352

Respectfully,

F. E. TROTTER,
Assistant Surgeon, M. H. S.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

SANTIAGO.

Statistics of immigrants inspected at the port of Santiago de Cuba from November 1, 1899, to June 30, 1900.

1899.	
November	90
December	119
1900.	
January	103
February	143
March	141
April	102
May	183
June	173
Total	1,054

Rejected (physical deformity), 1.

HERMAN B. PARKER,
Assistant Surgeon, M. H. S.

INSPECTION OF ALIEN IMMIGRANTS ARRIVING AT THE PORTS OF PORTO RICO DURING THE FISCAL YEAR ENDED JUNE 30, 1900.

On January 9, 1900, the honorable the Secretary of War was requested to formally assign the duty of inspection of alien immigrants arriving at the ports of Porto Rico to medical officers of the Marine-Hospital Service there stationed. This request was complied with, as shown in the following communication:

WASHINGTON, D. C., *January 20, 1900.*

SIR: I have the honor to acknowledge the receipt of your letter of the 9th instant, inclosing a copy of a communication dated the 27th ultimo, from Asst. Surg. C. H. Lavinder, United States Marine-Hospital Service, stationed in San Juan, P. R., and inviting attention to your letter dated September 29, 1899, regarding the medical inspection of alien immigrants arriving in that island, and requesting that this Department formally assign such inspection to the medical officers of the United States Marine-Hospital Service, on account of the danger of bubonic plague.

In reply, I beg to advise you that the military governors of Cuba and Porto Rico have been this day directed as requested by you.

Respectfully,

G. D. MEIKLEJOHN,
Assistant Secretary of War.

HON. SECRETARY OF THE TREASURY.

SAN JUAN.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
San Juan, P. R., July 12, 1900.

SIR: In compliance with paragraph 646, Revised Regulations, I have the honor to submit below the annual report of immigrants inspected at this and at the five subports of Porto Rico during the fiscal year ending June 30, 1900.

The inspection of immigrants by the Service was not inaugurated until February last, and this report covers the period from February 1 to July 1, 1900:

Total number of immigrants inspected	218
Number passed	217
Number certified for deportation on account of dangerous contagious or loathsome diseases, or for other physical causes	1
Disposition of immigrants certified for deportation:	
Number of cases pending at beginning of the year	0
Number of cases certified for deportation during year	1
Total to be accounted for	1
Number of cases deported	0
Number of cases admitted	1
Number of cases pending at close of year	0

Respectfully,

C. H. LAVINDER,
Assistant Surgeon, M. H. S.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

PONCE.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Ponce, P. R., July 23, 1900.

SIR: As directed by Bureau letter (R. M. W. &c. G.) of July 9, 1900, I have the honor to make the following report of immigrants inspected at the port of Ponce for the fiscal year ending June 30, 1900:

Total number of immigrants inspected and passed	521

Respectfully,

W. W. KING,
Assistant Surgeon, M. H. S.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

IMMIGRATION INSPECTION AT ST. JOHN, N. B., AND QUEBEC, CANADA.

In accordance with the request of the Commissioner-General of Immigration, a medical officer of the Marine-Hospital Service was stationed in the office of the Commissioner of Immigration at the port of St. John, New Brunswick, and was afterwards transferred to Quebec. The report of this officer follows:

TREASURY DEPARTMENT,
OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
Quebec, Canada, July 13, 1900.

SIR: As requested in Bureau letter (G., R. M. W.) of the 9th instant, I have the honor to transmit herewith a report of the transactions of the medical inspection of immigrants at St. John, New Brunswick, and Quebec, Canada, during my term of service at those ports, namely, from April 11 to June 30, 1900.

The report shows that none of the contagious cases certified as rejected were deported. The majority of these cases were sent to the hospital for treatment. A number of them recovered, and were given passports to the United States. A few deserted and escaped, while others disappeared immediately after inspection, or evaded inspection here.

Only two cases have been deported.

In this connection I beg to state that the Intercolonial and Quebec Central Railway companies and the steamboats plying between Quebec and Montreal are not included and therefore not interested in the "articles of agreement between the United States and Canadian transportation companies as to the inspection of immigrants." And detained or rejected immigrants (who have been refused passports by the inspectors and transportation by the Canadian transportation companies included in the above-named articles of agreement) experience little difficulty in securing transportation to Montreal or other points en route to their destination via above-named "not included roads."

Respectfully,

J. B. STONER,
Passed Assistant Surgeon, M. H. S.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

TREASURY DEPARTMENT,
OFFICE OF U. S. COMMISSIONER OF IMMIGRATION,
Quebec, Canada, July 13, 1900.

Report of medical inspection of immigrants at St. John, New Brunswick, and Quebec, Canada, from April 11, 1900, to June 30, 1900:

Number of immigrants inspected	8,331
Number of immigrants rejected	53
Causes for rejection:	
Melancholia	1
Syphilis	1
Pregnancy	1
Favus	36
Trachoma	4
Conjunctivitis:	
Chronic	9
Catarrhal, acute	4

Of the above number of rejected cases only 2 have been deported for the following causes:

Syphilis, tertiary	1
Melancholia	1

I certify that the foregoing report is correct.

J. B. STONER,
Passed Assistant Surgeon, M. H. S.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

INSPECTION OF EMIGRANTS AT NAPLES, ITALY, DURING THE FISCAL YEAR ENDED JUNE 30, 1900.

The instructions issued to the medical officer on duty at Naples will be found in the annual report for the fiscal year 1899. Following these instructions, the officer at that port continued his duties during the present fiscal year. His report follows:

U. S. CONSULATE,
Naples, Italy, August 15, 1900.

SIR: I have the honor to submit this report as a supplement to the tabulated report of the inspection of emigrants, which covered the period from July 1, 1899, to July 1, 1900.

On consulting the report it will be seen that trachoma is the cause of the greater number of rejections. The number of rejections for this cause, however, is steadily decreasing, not because the disease is on the decrease, but because the emigrants who have any disease of the eyes usually have them examined by a competent specialist, and if it is pronounced trachoma they do not present themselves for embarkation.

Favus is another disease to which the same remarks apply as to trachoma. It is indeed a rare thing now to see a case of favus.

Tuberculosis is very difficult to detect, because those individuals in whom the disease has advanced to any extent are not found among the people who wish to make a change of country.

At the present rate of increase, hernia will be the cause of the greater number of rejections in the future.

The total number rejected does not represent the number of people who are really affected. The true number is probably three times as great. This is caused by the fact that whenever one member of a family—a child, for instance—is rejected the entire family remain here.

The records also do not show the great number who seek advice privately before sailing. A great many intending emigrants present themselves at the consulate in order to get an opinion as to whether they would probably land or not. When advised to the contrary, they do not present themselves at the inspection; hence there is no record of them.

Except in the case of contagious diseases, there are no official rejections made here. Whenever a disease is detected which comes under the head of the immigration law, the steamship company is informed that this is a case which will probably be refused admission into the United States, so that they can use their discretion as to whether they wish to take it or not. Up to the present time this arrangement has worked very well, the steamship companies being glad to avail themselves of the advice of one who has had practical experience in these matters in the United States.

Lately I have been informed that many of the emigrants who fail to pass the inspection here go to Marseilles, from there to Havre or other points, where they embark on steamers which are bound for Canada. A surgeon on one of the regular lines between here and New York informed me that he was much annoyed a short time ago by meeting a man on the street in New York who had been rejected here. The man stated that he had come by the way of Canada.

Another feature well brought out by the report is that as the months pass by the variety of diseases for which rejections are made is constantly on the increase. This is probably due to the fact that as the experience of the inspector increases his ability increases, so that he is able to recognize more diseases in the short space of time in which the inspection must be made.

Respectfully,

VICTOR G. HEISER,
Assistant Surgeon, M. H. S.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

[Inclosure.]

RECAPITULATION.

Month.	Number of departures.	Cabin passengers.	Steerage passengers.			Rejected.	Percentage.	Baggage.		
			Naples.	Palermo.	Genoa.			Large.	Small.	Disinfected.
1899.										
July	7	57	3,183	....	....	109	3.45	213	1,020	....
August	9	116	4,432	....	....	79	1.77	1,181	4,410	....
September	9	176	5,532	32	400	45	.81	1,915	5,494	....
October	9	197	6,339	....	230	92	1.45	1,826	6,553	....
November	10	151	5,623	282	433	91	1.61	1,718	6,336	....
December	11	128	3,945	478	....	70	1.77	1,210	4,230	....
1900.										
January	10	162	9,312	....	....	51	1.30	862	3,560	575
February	7	82	4,703	....	....	84	1.78	677	4,957	69
March	14	366	11,454	413	....	158	1.33	1,182	12,460	2,629
April	13	270	11,709	689	....	191	1.54	1,122	10,242	4,896
May	16	202	14,140	122	....	265	1.84	2,262	15,603	213
June	11	146	8,913	728	....	171	1.77	1,661	10,416	274
Total	126	2,053	89,285	2,744	1,063	1,406	....	15,829	85,281	8,656

CAUSES OF REJECTION.

Acromegaly	1
Anemia, pernicious	9
Aneurism	1
Arterio-sclerosis	7
Blindness	9
Brain	8
Chorea	1
Conjunctivitis, suppurative	11
Debility	66
Deformities (neck and jaw)	6
Deformities (arms and hands)	7
Deformities (legs and feet)	22
Eczema	13
Erysipelas	1
Favus	65
Fever	152
Hernia	173
Infantile paralysis	4
Imbecility	10
Kyphosis	6
Lordosis	1
Marasmus	20
Myocarditis	5
Measles	22
Parkinson's disease	2
Pregnancy	1
Phthisis	26
Ringworm	25
Scabies	2
Scoliosis	6
Smallpox	6
Senility	10
Spinal column	3
Syphilis	5
Trachoma	624
Tuberculosis, glandular	6
Tuberculosis, genital	4
Tumors, genital	8
Valvular diseases	56

DIVISION OF DOMESTIC QUARANTINE.

REPORT OF THE DIVISION OF DOMESTIC QUARANTINE.

J. H. White,

Surgeon, United States Marine-Hospital Service, in Charge.

Importation of Dead Bodies from Infected Countries.

The Bureau during the previous year (1899) entered a protest against the return of remains of deceased soldiers from Cuba when there was any doubt as to cause of death, and suggested that only those absolutely known to have died of wounds or nonfebrile disease be so returned to the United States. This question again arose in March, 1900, as may be seen by the subjoined correspondence, which clearly sets forth the attitude of the Bureau:

[Memorandum from Quartermaster-General's Office, War Department.]

Eugene Tate, corporal, Company A, Ninth U. S. Volunteer Infantry, and Victor Miller, sergeant, Company E, Ninth U. S. Volunteer Infantry, on *McPherson*, sent to New Orleans; refused admission to the city by board of health account death due to yellow fever.

March 5, 1900.

Sir: In view of the fact that the Bureau is in receipt of information to the effect that two bodies of soldiers, deceased of yellow fever, were sent to New Orleans upon their arrival at New York on the transport *McPherson*, were refused admission to the city by the board of health on account of yellow fever, and the bodies ordered returned to New York; and in view of the possible danger arising from the handling and rehandling of such corpses, I have the honor to recommend that request be made of the War Department to forbid in future all such shipments as being dangerous to public health and in contravention of the health laws and regulations of the States through which such bodies must pass.

In view of the fact that there is always a possibility of mistaken diagnosis in the case of tropical diseases, I deem it wise to protest against the importation, for delivery in the Southern States, of bodies of persons who died of disease in the West Indies, such importations being distinctly dangerous to the public health, and although in case of the deceased soldier, nominally safeguarded by hermetically sealed caskets, there is and can be no guarantee that such caskets will not be opened by the family of the deceased after they have passed out of the hands of the health authorities.

Respectfully,

Walter Wyman,
Surgeon-General M. H. S.

The Secretary of the Treasury.

Treasury Department,
Washington, March 6, 1900.

Sir: I have the honor to invite your attention to inclosed letter from the Surgeon-General of the Marine-Hospital Service, setting forth the danger involved in the transportation into the Southern States of the bodies of persons who died in Cuba and Porto Rico from yellow fever, or any disease which might have been unrecognized yellow fever, and would ask your favorable consideration of the recommendation made to the Surgeon-General, to the effect that no such bodies should be transported into the Southern States.

Respectfully,

L. J. Gage, *Secretary.*

The Secretary of War.

[Transportation to Southern States of bodies of yellow-fever victims.]

WAR DEPARTMENT,
Washington, March 7, 1900.

SIR: I have the honor to acknowledge the receipt of your letter of yesterday's date, inclosing, with request for favorable consideration, a communication from the Surgeon-General of the Marine-Hospital Service, setting forth the danger involved in the transportation into Southern States of the bodies of persons who died in Cuba and Porto Rico from yellow fever, or any disease which might have been unrecognized yellow fever, and recommending that no such bodies be transported into Southern States.

Replying thereto, I beg to inform you that action will be taken by this Department with a view to a compliance with the request of the Marine-Hospital Service.

Very respectfully,

G. D. MEIKLEJOHN,
Acting Secretary of War.

The SECRETARY OF THE TREASURY.

MARCH 9, 1900.

SIR: Referring to your letter of the 5th instant, inclosing copies of correspondence between yourself and Deputy Q. M. Gen. D. D. Wheeler, U. S. Army, with the statement that you will be glad to know the views entertained by the Bureau in this matter, I have to inform you that the Bureau is of the opinion that it would be the part of wisdom to not undertake the transference to the United States of the bodies of any soldiers or other persons who have died from infectious diseases, and is inclined to go a step further, and has already requested the War Department to forbid the bringing of the bodies of any persons who have died of disease from the West Indies or other places where epidemic disease exists, because of the always existing possibility of a mistaken diagnosis.

Respectfully,

WALTER WYMAN,
Surgeon-General, M. H. S.

Dr. MAX C. STARKLOFF,
Health Commissioner, St. Louis, Mo.

SANITARY PATROL OF THE WEST COAST OF FLORIDA.

As referred to in the last annual report, the Service, at the request of the State health officer of Florida, instituted in the fall of 1899 a patrol of the small inlets on the west coast of Florida to prevent introduction of disease through the medium of "viveros," or Spanish fishing smacks, which, leaving Habana during the summer months, fish on this coast and smuggle rum and tobacco. The steamer *W. D. Bratton*, under command of a noncommissioned officer of the Service, was employed in this work. The following spring the same vessel continued this duty, under command of Asst. Surg. G. M. Corput, during the first five months of the quarantine season, but was then discontinued because of the thorough establishment of the custom of disinfecting these vessels in Cuban waters before departure, this disinfection being done by officers of the Service stationed in Cuba.

REPORT OF OFFICER IN COMMAND OF PATROLLING VESSEL.

U. S. S. W. D. BRATTON,
Tampa, Fla., September 30, 1900.

SIR: I have the honor to submit the following summary of the transactions of the quarantine steamer *W. D. Bratton* on the west coast of Florida from May 20 to September 30, inclusive.

The *Bratton* went out on her first cruise on May 24, and from that date until September 30, when she went out of commission, she cruised 3,518 nautical miles and visited all harbors between Cedar Keys and Key West at frequent intervals.

During this time 56 Spanish fishing smacks, the crews of which aggregated 392 men, were boarded and inspected, and 17 American vessels, with crews aggregating 85 men, were also boarded and inspected.

On August 2 yellow fever was reported present in Tampa by the representative of the State board of health at that place, and the *Bratton*, then at Key West, returned to Tampa at once, making the run from Key West to Port Tampa, a distance of 265 miles, in nineteen hours.

On the morning of August 6 the *Bratton* began patrolling the bay off Tampa to prevent the escape of refugees by water unless satisfactory passes were presented. This work was kept up until August 13, and during that time 51 vessels were overhauled and inspected, and 19 were turned back on account of not holding satisfactory passes signed by the State health officer. Although considerably handicapped by her small coal capacity and lack of searchlight for night work, the *Bratton* has done efficient work and has proved herself an able sea boat and well adapted for patrol work.

Much inconvenience has been experienced during the season on account of great difficulty in securing satisfactory crews. The men have, as a rule, proved themselves not amenable to even ordinary discipline and left the vessel over the slightest reprimand, and the frequent changing of crews necessitated thereby has prevented, to a large extent, the observation of the uniform regulations. In this connection I would respectfully recommend that, if possible, some arrangement should be made whereby the crew of the vessel could be enlisted and some suitable punishment be provided in cases of desertion.

I would also respectfully recommend that uniforms be furnished the crew, excepting the pilot and engineer, as is done in the Revenue-Cutter Service. In this way it would be possible to maintain proper discipline and obtain greater efficiency in the crew, and having well-trained men would greatly curtail waste and more than save cost of uniforms during the season.

Much difficulty has been experienced in obtaining satisfactory subsistence supplies, fuel, etc., on occount of lack of competition and resulting high prices.

The *Bratton* is now tied up in the Hillsboro River at Tampa, near Sweats Steam Ways, and her upper works have been covered with canvas to protect her from sun and rain.

Explicit written orders have been given her pilot and engineer as to her proper care and preservation while she is out of commission, and copies of these orders have been sent the Bureau.

Respectfully,
G. M. CORPUT,
Assistant Surgeon, U. S. Marine-Hospital Service, in Command.

The SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

INVESTIGATION OF REPORTED YELLOW FEVER AT TAMPA, FLA.

On August 2, 1900, a telegram having been received by Dr. J. Y. Porter, State health officer of Florida, to the effect that there were two cases of yellow fever existent at Tampa and that another case was already deceased, Dr. Porter requested Surg. J. H. White, who was then at Key West on a tour of inspection, to accompany him to Tampa for a joint investigation of the matter.

They arrived in Tampa on the morning of August 4, and at once began a house-to-house inspection.

The following extracts from the Public Health Reports of August 10 and 17, respectively, show what was done and that the cases were not yellow fever:

[Extract from Public Health Reports of August 10, 1900.]

CONCERNING REPORTS OF YELLOW FEVER AT TAMPA, HILLSBORO COUNTY, FLA.

August 3 a dispatch was received from the State health officer of Florida, stating that he had received a dispatch from the State health officer of Hillsboro County reporting 2 cases of yellow fever at Tampa, and that on the following day, August 3, another dispatch had been received, as follows:

"First case seen Tuesday and regarded as suspicious. Second, a tailor, seen Wednesday morning, dying; autopsy, yellow fever. Third case, employee laundry, seen yesterday, diagnosed yellow fever this morning, source not known."

August 4 State Health Officer Porter, with Surgeon White of the Marine-Hospital Service, arrived at Tampa. Surgeon White reported that the interstate quarantine regulations of the Treasury Department were being enforced and that the State quarantine officer had directed that no tickets be sold to points south of Washington, except to Atlanta and points wiring their willingness to receive them.

The same date and on August 5, Surgeon White wired that there had been no new developments and that the diagnosis in 2 of the reported cases appeared to be incorrect and that quarantine would be raised on August 15 unless new foci should develop.

Following is the substance of a telegram received from Surgeon White, dated Tampa, Fla., August 7, 1900:

A limited cordon covering regular exits was placed by Health Officer Porter Saturday, and, aided by steamer *Bratton*, on the bay. Certain permits were given for entry and exit to near-by localities in the same county, but to no cities. Only through tickets were sold to the North and to Southern cities named in Saturday's proclamation; not a great many to these.

Surgeon White expresses the opinion that, under the conditions as he found them, this is sufficient protection for the present. If situation had been graver, the sale of tickets north would have been forbidden until efficient train inspection was established. Surgeon White is personally visiting cases reported by house inspectors, but as yet nothing has been found.

[Extract from Public Health Reports of August 17, 1900.]

REMOVAL OF QUARANTINE RESTRICTIONS IMPOSED ON ACCOUNT OF SUSPECTED YELLOW FEVER AT TAMPA.

TAMPA, FLA., *August 11, 1900.*

SIR: You are hereby officially informed that all quarantine restrictions on travel to and from Tampa, Fla., heretofore imposed in consequence of suspected yellow fever infection thereat, will be removed at midnight this date.

Respectfully,

JOSEPH Y. PORTER,
State Health Officer of Florida.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

ALABAMA REMOVES QUARANTINE AGAINST TAMPA.

MONTGOMERY, ALA., *August 14, 1900.*

Alabama will remove quarantine against Tampa to-day at noon.

W. H. SANDERS, M. D.,
State Health Officer.

BUBONIC PLAGUE AT SAN FRANCISCO, CAL.

While, during the year, this disease has made its appearance on vessels at several national and local quarantine stations in the United States, namely, Port Townsend, San Francisco, and New York, it was reported present in only one of these cities, San Francisco, and the time and method of its entrance have not as yet been determined.

On March 7 press dispatches from San Francisco stated that the body of a Chinaman was removed on March 6 from the basement of the Globe Hotel to the rooms of a Chinese undertaker, and that the assistant police surgeon, Dr. Wilson, reported the case to Health Officer O'Brien as suspicious of bubonic plague. Surgeon Gassaway, in command of the marine hospital at San Francisco, was wired to keep the Bureau informed, and the following is the telegraphic correspondence:

[Telegrams.]

SAN FRANCISCO, CAL., *March 7, 1900.*

Telegram received. Was cordially received by local board of health. Investigation of supposed plague at meeting to-night. Promise information. Not known yet how long case had been in city. Will wire again.

GASSAWAY.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *March 7, 1900.*

Local board of health meeting; was invited to participate. Glands from suspected plague submitted by board to Kinyoun for examination, and Kinyoun inoculated monkeys, rats, and rabbits. Chinatown, 12 blocks, cordoned; street cars stopped, but to be allowed to run to-morrow under strict rule of no passengers allowed outside cars and each car disinfected daily. Dwelling and undertaker's shop of suspected case has been formaldehyded. Informed board that you had directed us to give all assistance in our power. Board votes thanks. Suspected case No. 2 at city and county hospital. Situation thus far well in hand, apparently. Board promises to keep us informed. Can not learn antecedents of cases yet. Best of feeling between board and us.

GASSAWAY.

Sugeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *March 8, 1900.*

In case suspected cases prove to be plague, make following suggestions to local board of health: All inhabitants of Chinatown to be treated with the Haffkine prophylactic or antipest serum, the Haffkine prophylactic to be used except in those cases known or supposed to have been directly exposed to plague, when the antipest serum prophylactic dose should be given. The Haffkine prophylactic dose is but 1 cubic centimeter and immunizes for an indefinite period of probably several months. The antipest serum immunizing dose is from 5 to 10 cubic centimeters and immunizes for a period of probably fifteen days. The curative dose of the antipest serum is, on the average, 120 cubic centimeters; during the first forty-eight hours of the disease in doses of from 20 to 40 cubic centimeters. For carrying out this plan, there are now in San Francisco 200 bottles of antipest serum, each containing 20 cubic centimeters, and 300 bottles were expressed to you yesterday. There are also 130 tubes of Haffkine prophylactic, containing 1,950 doses. This supply is sufficient for a good beginning. Day after to-morrow we can express to you 13,000 doses of Haffkine and, in all probability, 10,000 doses weekly thereafter. Impress upon the board of health that these broad measures are urged not so much through apprehension of immediate great danger, but rather to quickly prevent a lodgment of the disease or establishment of endemic focus, causing occasional outbreaks which might be apprehended throughout a year. Furthermore, it is deemed by the Bureau that sulphur is preferable as a disinfecting agent for plague, because of its germicidal effect, and it will kill rats and other vermin which formaldehyd fails to do. Send copy of this to Kinyoun.

WYMAN.

Surgeon GASSAWAY, *San Francisco.*

SAN FRANCISCO, CAL., *March 8, 1900.*

Reliable information that patient suspected of plague had been in city continuously fifteen years, and for last six months under treatment for specific disease. Past month was laid up with * * * cystitis, and bubo of the groin; probable cause of death congestion of lung and pneumonia. Six suspected plague in Chinatown to-day. Case reported by me in the city and county hospital not plague.

GASSAWAY.

Surgeon-General WYMAN, *Washington.*

ANGEL ISLAND, CAL., *March 8, 1900.*

Case of alleged plague in Chinatown reported. City bacteriologists bring me specimens for examination. Animals inoculated this afternoon. So far no one has obtained history of case. Chinese Six Companies have undertaken investigation previous history suspect.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

ANGEL ISLAND, CAL., *March 8, 1900.*

History of suspect obtained through Chinese consul and Six Companies shows that case was resident of city sixteen years; sick since February 7 with specific disease. No developments so far in animals inoculated.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

NEW ORLEANS, LA., *March 8, 1900.*

Confidentially informed thirty cases plague, San Francisco, Chinatown.

GLENNAN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *March 8, 1900.*

Can you give source of information or probability of being reliable? To-day's dispatches from Gassaway and local board of health give no such hint.

WYMAN.

Surgeon GLENNAN, *New Orleans.*

WASHINGTON, *March 8, 1900.*

Upon von Ezdorf's arrival Saturday proceed immediately to San Francisco for special temporary duty. Report arrival by wire, when further instructions will be sent you.

WYMAN.

Surgeon GLENNAN, *New Orleans.*

NEW ORLEANS, LA., *March 9, 1900.*

Orders received. Request transportation via Southern Pacific. Special semiweekly through limited train departs Monday morning. Information wired you may be unreliable, but reported for what it was worth.

GLENNAN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *March 9, 1900.*

Chinatown released from quarantine to-day. Local board of health begins house-to-house inspection to-morrow with 14 men. Estimated population, 25,000; area, twelve city blocks. Kinyoun's menagerie all well at 8 o'clock. No new cases.

GASSAWAY.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *March 10, 1900.*

On arriving San Francisco report by wire, when expect to order you inspect quarantine, beginning at Port Townsend and down the coast, and when completed to rejoin station.

WYMAN.

Surgeon GLENNAN, *New Orleans.*

ANGEL ISLAND, CAL., *March 11, 1900.*

Completed examination specimens dead Chinese demonstrates plague. No further history obtainable. Board health with Gassaway had meeting here to-day.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *March 11, 1900.*

The local board of health called a meeting at San Francisco Quarantine to-day, inviting Dr. Kinyoun and self. Rat and 2 guinea pigs died to-day, eighty-four hours after inoculation. Monkey very ill. Diagnosis of plague confirmed by bacteriological examination by Dr. Kinyoun. The local board of health will call a second meeting of mayor, Chinese consul-general, president commercial bodies, press representatives, Dr. Kinyoun, and myself for to-night. Will wire again. Serum received from Long.

GASSAWAY.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *March 14, 1900.*

There is nothing new to report. There is a better feeling prevailing. Local board of health has 30 men inspecting Chinatown, ordering inhabitants to clean up premises. Chinese consul-general assisting by obliging Chinamen to procure disinfectants ordered by inspectors and cleaning dwellings. Local board of health has no money, and of 100 volunteer medical men asked for about 10 only responded. Most of the local authorities working gratuitously, as salaries cut off on account of no funds.

Kinyoun's monkey died yesterday. Necropsy confirms diagnosis of plague. Local board of health requires certificate from Caucasian physician and necropsy of every suspicious case before granting burial permit. No new cases.

GASSAWAY.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *March 15, 1900.*

Arrived. Address Occidental Hotel.

GLENNAN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *March 15, 1900.*

Call on Gassaway. Have him introduce you president board health. If further developments in Chinatown you will be specially detailed for duty there. If no developments within a day or two you will be ordered to begin inspection of Pacific coast quarantines, beginning at Port Townsend. Wire your proceedings daily.

WYMAN.

Surgeon GLENNAN, *San Francisco.*

SAN FRANCISCO, CAL., *March 16, 1900.*

Partial inspection suspected district gives negative result. Have conferred with Gassaway and Kinyoun. Pending further developments request orders to proceed to-morrow with inspection of northern coast and return to this point, thereby avoiding appearance of interference or friction with local authorities.

GLENNAN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *March 16, 1900.*

Have you received blanks for quarantine inspection mailed you? Proceed to Eureka first and inspect quarantine. Give necessary instructions to quarantine officer and make recommendations as to purchase of quarantine site. Intend to send you thence to Astoria, Hoaquiam, Port Townsend; but when through at Eureka wire and await orders to proceed.

WYMAN.

Surgeon GLENNAN, *San Francisco.*

SAN FRANCISCO, CAL., *March 17, 1900.*

Blanks received. Introduced to board as directed. Relations cordial. Autopsy on discovered hidden cadaver last night gave negative result. General feeling easier. First steamer for Eureka (only practical route) departs Tuesday afternoon. Can save time by going to Port Townsend first and working down. Request instructions.

GLENNAN.

Surgeon-General WYMAN, *Washington.*

Careful examinations were made of all suspects, the bacteriological research in each case being done by Surgeon Kinyoun in conjunction with the board of health. House to house inspection was instituted in Chinatown.

On March 19 two additional cases, suspected of being plague, were submitted to Surgeon Kinyoun for examination, and the results obtained were negative, neither proving nor disproving the diagnosis. Surgeon Kinyoun's telegraphic report on these cases is appended below:

[Telegram.]

SAN FRANCISCO, CAL., *March 19, 1900.*

At request board have assisted examination two additional cases suspected plague. Cultures from one show organism very suspicious; another autopsied to-day shows same appearance. Blood and spleen animal inoculations made. Cases occurred different parts Chinese quarters. No history obtainable except residents for over year; sick for month. Board finally adopts recommendations house-to-house inspection after week's delay, has no funds; little experience. Suggest officer be returned soon as possible.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

The following telegrams illustrate the feeling with regard to the situation entertained by the local board of health and by the officers of the Marine-Hospital Service up to the latter part of March:

[Telegrams.]

San Francisco, Cal., *March 21, 1900.*

Plague situation practically unchanged. City government has furnished funds and the local health authorities will have 30 medical and 120 lay inspectors in Chinatown to-morrow morning for house-to-house inspection and cleaning up. Serum arriving promptly by express, and has been offered board several times. Several suspicious deaths investigated with negative results. Inoculations now being watched by Kinyoun.

Gassaway.

Surgeon-General Wyman, *Washington.*

San Francisco, Cal., *March 21, 1900.*

Add to-day's telegram local health authorities to-day stations guards at each place of exit from city by railroad or water to examine every Chinaman attempting to leave city and to detain every suspicious case. Chinamen believed to be sending sick ones to other cities. Bodies Chinamen have been kept several days before application made for burial permit to board. Inspection of every house in Chinatown will be made every day for thirty days. Sewers and dwellings disinfected daily by sulphur dioxide and bichloride.

Gassaway.

Surgeon-General Wyman, *Washington.*

The following Associated Press dispatch, dated San Francisco, was communicated to the Marine-Hospital Bureau by telephone on Wednesday, March 21, 1900, at 3.45 p. m.:

Bubonic plague exists in this city. Every effort is being made by the authorities to keep the fact secret and prevent the further spread of the disease. During the past week there have been three deaths from the scourge, making four in all. The news was suppressed by the authorities until to-day, as they wished to be positive before making an announcement. Both Dr. Kellogg, city bacteriologist, and Dr. Kinyoun, Federal quarantine officer, declared to-day that after a most careful examination of the bacilli from glands of victims they were satisfied plague was cause of the death. Hundreds of inspectors were sworn in to-day to make thorough inspection of Chinatown. Entire district being investigated and fumigated.

The following Scripps-McRae dispatch, dated San Francisco, was communicated to the Marine-Hospital Bureau over the telephone on Thursday, March 22, 1900:

President Williamson, of the board of health, has issued the following statement: "There is no use evading the issue. The Chinese quarter of this city is infected with plague. The Chinese are concealing the cases, and for this reason the board has increased the corps of inspectors. Every part of the district will be ferreted out and the whole neighborhood drenched with disinfectants. Supicious cases will be isolated and developments awaited. San Francisco is confronted with a serious condition, and the citizens must prepare to meet it." He closes with an appeal for support instead of criticism. The local papers are endeavoring to suppress plague news. President Montgomery, of the medical department of the University of California, and Professor Ophul, of Cooper Medical College, after examination of germs taken from one of the victims, has concurred in the plague diagnosis. The Mexican ports are quarantining against San Francisco.

[Telegram.]

San Francisco, Cal., *March 22, 1900.*

Williamson publishes this morning résumé of the situation from a political and municipal point of view. Protest against the persistent lampooning of newspapers and ridicule of public. Bureau has already been informed by wire from day to day by myself and Kinyoun of all medical points touched upon by Williamson, except his decision that Chinatown is infected with plague and that the Chinese are concealing cases. Kinyoun's rat, inoculated Monday, died to-day. Will wire daily.

GASSAWAY.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *March 23, 1900.*

No new developments. House-to-house inspection of Chinatown continuing. Necropsy Kinyoun's rat negative.

GASSAWAY.

Surgeon-General WYMAN, *Washington.*

ANGEL ISLAND, CAL., *March 23, 1900.*

Under date March 19 telegraphed you the following: "At request board have assisted examination two additional cases suspected plague. Cultures from one showed organism very suspicious. Another autopsied to-day shows same appearances. Blood and spleen animal inoculation made. Cases occurred in different parts Chinese quarters. No history obtainable except residence for over year; sick for month. Board finally adopts recommendation house to house inspection after two week's delay. Has no funds, little experience. Suggest officer be returned as soon as possible." Another similar case to these reported yesterday; diagnosis pneumonia. Autopsy does not confirm. Organism suspicious, but must await result inoculation. Rat inoculated from first case referred to dead thirty-six hours. Examination not yet completed. The new cases can not be traced to foci already located. Expect there will be further spread. Every condition favorable among this population. Requires quick action. No time to lose. Further information soon as obtained. Confidential.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *March 23, 1900.*

Return to San Francisco by first train.

BAILHACHE, *for Surgeon-General.*

Surgeon GLENNAN, *Port Townsend.*

PORT TOWNSEND, WASH., *March 24, 1900.*

I depart immediately for San Francisco, as ordered.

GLENNAN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *March 24, 1900.*

Situation practically unchanged. Chinamen evidently concealing sick to avoid inspection. Suspicious case found to-day and removed to pesthouse. House-to-house inspection continuing.

GASSAWAY.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *March 26, 1900.*

Situation unchanged. Case at pesthouse negative. Inspection and cleaning up of Chinatown continuing.

GASSAWAY.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *March 26, 1900.*

Arrived to-night. Address Occidental Hotel.

GLENNAN.

Surgeon-General WYMAN, *Washington.*

On March 28 confidence seems to have been restored so far as the plague was concerned, and affairs remained in a quiescent state, with occasional reports of the examination of suspects without results.

The following telegrams from Marine-Hospital Service officers were received, showing the status of affairs during this period:

San Francisco, Cal., *March 28, 1900.*

House-to-house inspection Chinatown closed to-day. Some few houses inspected in Latin quarter, inhabited principally by Italian fishermen. No new cases. Confidence restored. * * *

Gassaway.

Surgeon-General Wyman, *Washington.*

San Francisco, Cal., *March 28, 1900.*

Conferred with Kinyoun yesterday and witnessed inspection steamer *Australia.* Situation still cloudy. Will see municipal inspection to-day.

Glennan.

Surgeon-General Wyman, *Washington.*

San Francisco, Cal., *March 29, 1900.*

Official reported deaths this month Chinese quarter one-half less than annual rate, showing concealment and burial of bodies for fear of autopsies and cremation. Sick also smuggled out to surrounding country. Inspection Latin quarter slums begun. Am in touch with president board of health and health officer. Best remain here a while.

Glennan.

Surgeon-General Wyman, *Washington.*

Washington, *March 31, 1900.*

Referring to your telegram of the 29th, write full report on reasons for your opinions. Wire daily report.

Wyman.

Surgeon Glennan, *San Francisco.*

San Francisco, Cal., *April 1, 1900.*

Inspection of Chinatown and Latin quarter with reduced force continuing. Sleeping department in basement forbidden. Cleaning in progress. Local board of health urgently request more copies of your pamphlet on plague for use and distribution. All theirs are given out.

Gassaway.

Surgeon-General Wyman, *Washington.*

San Francisco, Cal., *April 2, 1900.*

Report mailed. No new developments.

Glennan.

Surgeon-General Wyman, *Washington.*

San Francisco, Cal., *April 4, 1900.*

Conference with health officer last night. Seemingly little need for anxiety. Am observing operations at Angel Island. Good work, involving full capacity of station. Suggest official inspection this week pending departure of steamer for Eureka April 9.

Glennan.

Surgeon-General Wyman, *Washington.*

San Francisco, Cal., *April 7, 1900.*

No new developments. Inspectors are being gradually withdrawn.

Glennan.

Surgeon-General Wyman, *Washington.*

San Francisco, Cal., *April 10, 1900.*

All proceedings in Chinatown discontinued except ordinary inspections. No suspicious cases. * * *

Gassaway.

Surgeon-General Wyman, *Washington.*

SAN FRANCISCO, CAL., *April 17, 1900.*

Arrived. Address Occidental Hotel. Report mailed. Request orders.

GLENNAN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *April 18, 1900.*

Inspect Los Angeles, San Pedro, San Diego, and rejoin station.

WYMAN.

Surgeon GLENNAN, *San Francisco.*

LOS ANGELES, CAL., *April 26, 1900.*

I have completed inspection of southern coast stations as ordered. Due to arrive New Orleans Monday night.

GLENNAN.

Surgeon-General WYMAN, *Washington.*

On April 25 another case was discovered, and the following telegraphic correspondence ensued:

ANGEL ISLAND, CAL., *April 26, 1900.*

Another case suspected plague discovered yesterday. Microscopical examination gland shows organism very suspicious. Animal inoculation made. Suggest immediate shipment portable sulphur furnace.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

ANGEL ISLAND, CAL., *May 2, 1900.*

Examination plague suspect completed. Diagnosis confirmed by bacteriological examination. Old resident. No connection traced to first at present. Don't give this information to public. Will write reasons for secrecy.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

The Bureau immediately instituted measures to furnish Surgeon Kinyoun with an ample supply of the curative serum of Yersin and some 30,000 bottles of haffkine prophylactic.

The following telegrams explain the situation up to May 21:

[Telegram.]

ANGEL ISLAND, CAL., *May 13, 1900.*

Have now under investigation two additional cases suspected plague, one quite suspicious; one previously reported May 2 came from Sacramento River.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

ANGEL ISLAND, CAL., *May 15, 1900.*

One case referred to May 13 is plague; Chinese girl; long residence; Clay street. Another discovered yesterday; dead May 13; large femoral bubo; characteristic organisms; sick five days; diagnosed typhoid fever by white physicians; is undoubted plague. Now have occurred four cases plague in San Francisco, three originating in San Francisco, one near Sacramento; regarded now epidemic, as no connection can be traced between cases local board of health. As requested, secrecy required first case on account of vicious attacks local press. Local board of health now proposes to announce facts to-morrow in joint meeting with editors and merchants' association; will attempt to provide ways and means; have invited me present. Please instruct whether I shall go and how far may I state Service will aid or assist; regard situation very serious; will require almost superhuman efforts to control now, so much time has been lost. Over 35,000 people must be controlled. If preventive inoculations given, would require at least $100,000 to make successful. If depopulation should be necessary, ten times this amount will be required. Portable sulphur furnace arrives. Have tendered its use to local board of health. Please wire instructions.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 15, 1900.*

Attend meeting and wire promptly report of it. Ascertain if help is desired of the Service and to what extent. No expenditures can be authorized except under Service officers.

WYMAN.

KINYOUN, *Angel Island, Cal.*

WASHINGTON, D. C., *May 15, 1900.*

The law of 1890 holds good and can he applied.

WYMAN.

KINYOUN, *Angel Island, Cal.*

WASHINGTON, *May 15, 1900.*

Chinese consul-general, San Francisco, will be wired to use his influence to have the Chinese comply cheerfully with necessary measures and consult with you as the representative of the United States Government. Confer with consul-general. Have about 20,000 Haffkine on hand; will be shipped to-morrow. If Gassaway has any, get it. Suggest advisability of following measures: One man in supreme charge. Subordinates in charge of divisions. Cordon of suspected area. Guard ferries and railroad stations with reference to Chinese only. House-to-house inspection with Haffkine inoculation. Chinatown to be districted. Pest hospital in Chinatown, using some substantial building. Suspects from plague houses to be removed to a suspect house in Chinatown, or, if you deem necessary, to Angel Island. A disinfecting corps. Destruction of rats. Inspection of railroads and outside territory.

WYMAN.

Surgeon KINYOUN, *Angel Island.*

SAN FRANCISCO, CAL., *May 17, 1900.*

Assisted at conference of mayor and Merchants' Association and city board of health, with Kinyoun, by invitation, from 4 to 11 yesterday. Five cases plague already reported to Bureau by Kinyoun were discussed, and method of handling epidemic. Have been requested to meet with board. What are your instructions in the matter? City board of health and merchants earnestly desire that no newspaper or other publicity be made, for obvious reasons.

GASSAWAY.

Surgeon-General WYMAN, *Washington.*

ANGEL ISLAND, CAL., *May 17, 1900.*

At joint meeting held by local board of health and Merchants' Association and representatives Chinese Six Companies was decided to have further conference with representatives of Chinese to-day for purpose of perfecting plans of operation. Your telegram discussed and main features recommended for adoption. Local board of health desires to do the work itself, and believes it can have funds furnished it for this purpose. Have offered to assist in every way possible, but have not made any tender of funds. Believe the work of guarding outlying districts will be necessary and will devolve upon the Service to carry this out. Will ascertain to-day attitude of health authorities in surrounding towns and what measures can be carried out there. Believe great danger lies in fact of exodus which will necessarily occur as soon as house-to-house inspection begins. Shall I visit Stockton and find out whether disease exists there? Can do so now within next two days, as no vessels are due. One case plague dead May 16, reported to have arrived two days before from Stockton. Have not been able to ascertain complete history. Local board of health and association request secrecy until completed arrangements for financial operations be perfected.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *May 17, 1900.*

Visit Stockton and other places if necessary. With regard to surrounding towns, suggest getting in touch with State board. Will send you some good additional junior officers. Expressed 2,000 Haffkines yesterday, 3,000 to-day, and 15,000 in the three following days. Authorized to employ such acting assistants as may be necessary, wiring compensations and submitting regular nominations promptly by mail.

WYMAN.

Surgeon KINYOUN, *Angel Island.*

WASHINGTON, *May 17, 1900.*

Nominate two good acting assistants for train inspection—one at Reno and one as near Oregon border as practicable. Compensation $200 per month and actual railroad fare to and from destination. Send them at once to places indicated to await orders. Have sent similar dispatch to Cofer for southern routes. Suggest McQuesten as one inspector. Answer immediately.

WYMAN.

Surgeon KINYOUN, *Angel Island.*

WASHINGTON, *May 17, 1900.*

Nominate two acting assistants for train inspection—one each on Santa Fe and Southern, as near Arizona border as practicable. Compensation $200 per month and actual railroad fare to and from destination. Send them there immediately to await orders. Authorized to personally inspect locations if necessary. Wire action. Acknowledge.

WYMAN.

Assistant Surgeon COFER, *Los Angeles, Cal.*

WASHINGTON, D. C., *May 17, 1900.*

Bureau thinks that on account case reported March 8 advisable to carefully inspect and keep under surveillance any Chinese arriving from San Francisco.

WYMAN.

HARRIS, *Quarantine Officer, Eureka, Cal.*

(Same telegram was sent to Frary, quarantine officer, Hoquiam, Wash.)

WASHINGTON, D. C., *May 17, 1900.*

Five plague San Francisco. Make it reason for any restrictive measures that there has been a case of plague at San Francisco March 8.

WYMAN.

FOSTER, *Quarantine, Port Townsend, Wash.*

(Same telegram has been sent to quarantine officers Astoria, Oreg., Los Angeles and San Diego, Cal.)

WASHINGTON, D. C., *May 18, 1900.*

Relieved from duty at Detroit; proceed immediately to San Francisco; report to Kinyoun for duty; transportation will be wired to-morrow; ship personal effects through quartermaster.

WYMAN.

EARLE, *through commanding officer,*
Marine-Hospital Service, Detroit, Mich.

WASHINGTON, D. C., *May 18, 1900.*

Instruct Wilson to report immediately to Kinyoun for duty. Authorized to nominate temporary acting assistant.

WYMAN.

Surgeon GASSAWAY, *San Francisco.*

WASHINGTON, D. C., *May 18, 1900.*

Relieved from duty Chicago; proceed immediately San Francisco; report to Kinyoun for duty; transportation will be wired to-morrow; ship personal effects through quartermaster.

WYMAN.

LLOYD, *through commanding officer,*
Marine-Hospital Service, Chicago, Ill.

MAY 18, 1900.

Envoyez grande vitesse virus Danysz, cinquante cultures en gelose ou deux litres culture en bouillon.

WYMAN.

ROUX, *Institut Pasteur, Paris.*

WASHINGTON, *May 18, 1900.*

Inspect carefully the Chinese and Chinese baggage. Hold them for observation if necessary.

WYMAN.

FOSTER, *Port Townsend, Wash.*

ANGEL ISLAND, CAL., *May 19, 1900.*

The local board of health officially states existence of plague San Francisco. Has requested the State board to act. Have requested me to notify transportation lines and have taken steps to prevent exodus. Will commence house to house inspection to-day and attempt haffkine. Will have trouble to enforce law, as residents of San Francisco are being advised to resist by certain whites. Consul-general and Six Companies are in accord with Bureau telegram. Have notified transportation companies situation and request them to comply. Respectfully suggest I be empowered to enforce law of 1890. In event of refusal will be requested by the State board to assume charge this inspection. Will appoint necessary inspectors as fast as possible and assign them duty and outlying districts. Impossible to nominate inspectors for Reno and Oregon borders yesterday, because I was absent in Stockton. Will do so to-day.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *May 19, 1900.*

Are you able to take charge as Bureau representative of all Service measures in California, retaining control of the quarantine, but delegating quarantine service to an officer, keeping me thoroughly informed, and advising as to regulations to be made and enforced?

WYMAN.

Surgeon KINYOUN, *Angel Island.*

ANGEL ISLAND, CAL., *May 19, 1900.*

Am able to act as Bureau representative for Pacific coast if sufficient number of officers are sent me. Have advised board of health not to insist on compulsory vaccination, but rather a quarantine cordon instead, allowing no one to leave infected area until vaccination accomplished. Believe can overcome obstacles within a short time.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

ANGEL ISLAND, CAL., *May 19, 1900.*

Health office attempt to make inspection of Chinatown with 40 inspectors and few police. All Chinatown is closed; impossible to gain access to houses. So far no one inoculated. There is a preconcerted resistance on part of Chinese against inspection. Consul-general and Six Companies powerless to enforce demands or to cooperate. In my opinion will require a regiment before any good will be done. Have instructed railroad lines to refuse passage to Chinese or Japanese desiring to leave San Francisco. Exodus has begun. Find it quite difficult to procure proper medical inspectors. Have secured service of McQuesten for Fresno and will supply inspector for Oregon border to-day. Wilson reports for duty this morning. Another case suspected plague found last night; dead several days.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *May 19, 1900.*

Advise that you use tact and discretion in enforcing Haffkine inoculation of Chinese and be not too precipitate or harsh. End will be more certainly and easily gained. As to whites interfering, notify them interference will make them equally liable with open violators of the regulations to the penalties imposed by section 1, act of Congress March 27, 1890.

WYMAN.

Surgeon KINYOUN, *Angel Island, Cal.*

WASHINGTON, *May 19, 1900.*

It is suggested here it would materially influence the Chinese if some whites were vaccinated.

WYMAN.

Surgeon KINYOUN, *Angel Island, Cal.*

WASHINGTON, D. C., *May 19, 1900.*

Await further orders before proceeding to Hongkong. In the meantime report to Kinyoun for duty.

WYMAN.

KERR, through KINYOUN, *Angel Island, Cal.*

WASHINGTON, *May 19, 1900.*

Direct your inspectors at Reno and Oregon border to allow no Chinese or Japanese to pass out without certificate from Marine-Hospital Service. Cofer directed to give same orders to inspectors at Needles and Yuma and to notify you. Notify State board health.

WYMAN.

Surgeon KINYOUN, *Angel Island, Cal.*

WASHINGTON, *May 19, 1900.*

Instruct your inspectors at The Needles and Yuma to begin inspection of trains and prevent exit from State of Chinese or Japanese unless accompanied by certificate of Marine-Hospital officer. Notify Kinyoun, San Francisco.

WYMAN.

COFER, *Los Angeles.*

Health officials of Texas and Louisiana were notified of the status of affairs by the following telegrams:

WASHINGTON, *May 19, 1900.*

Inspectors are stationed at railroad crossings southern California. Six cases altogether and one now existing among Chinese. Other steps taken to prevent exodus.

WYMAN.

Dr. W. F. BLUNT, *State Health Officer, Austin, Tex.*

WASHINGTON, *May 19, 1900.*

One case plague now existing San Francisco among Chinese. There have been six cases altogether. Inspectors are stationed at railroad crossings southern California. Other steps have been taken to prevent exodus.

WYMAN.

Dr. EDMOND SOUCHON,
President State Board of Health, New Orleans, La.

ANGEL ISLAND, CAL., *May 19, 1900.*

Proposed placing crematory on point of route near station. Arrangements now being made to build same in Chinatown.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

On May 20 Surgeon Kinyoun summed up the situation in the following telegram:

SAN FRANCISCO, CAL., *May 20.*

Board of health continues attempt at house to house inspection, offering inoculation. All houses still closed. Japanese desiring to leave city are availing themselves Haffkine prophylatic. Only one Chinese inoculated to-day. So far no cordon around infected area. No provisions made for detention of suspects nor for hospital. Have asked War Department whether temporary use could be had for detention camp near station. Had conference with consul and representative Chinese to-day, in which they request information regarding law for action contained in telegram directing me request transportation companies refusal tickets Chinese and Japanese. Respectfully suggest that would be better to all parties concerned to confer full powers on me to order transportation companies and others rather than a request. Believe Chinese intend testing matter in court. No serious friction exists between myself and Chinese authorities; all directed toward the local board of health. Have advised caution and believe with good effect. Have appointed inspectors for Reno and Ashland; both on way. Have instructed them according to Bureau telegram. Please wire them fully further instructions. Have been suggested inspector required at Nogales. Have appointed to-day seven inspectors, assigning them duty at points of exit. Will extend guard line to-morrow. Have notified health authorities adjacent towns to look out and apprehend any Chinese or Japanese arriving without proper certificate. Have assigned Kerr work regarding vessels leaving port. Suspected case plague reported May 13 proves genuine. People here absolutely in dark as to correct situation, on account of local papers refusing publishing any matter pertaining to epidemic. State board of health meet here to-morrow evening.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

It being apparent from this that affairs had assumed a serious aspect, the following letter, with accompanying memorandum regarding plague in San Francisco, was laid before the Secretary of the Treasury and by him submitted to the President, requesting authority to formulate regulations under the act of March 27, 1890, to prevent the spread of this disease:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, May 21, 1900.

SIR: I inclose herewith a memorandum showing the existence of the bubonic plague in Chinatown, in San Francisco, Cal.

I have to request that the matter be brought to the attention of the President, and that he authorize you, as provided by the act of Congress of March 27, 1890, to promulgate such regulations as may be necessary to prevent the spread of this disease from one State or Territory into another.

Respectfully,
WALTER WYMAN,
Supervising Surgeon-General M. H. S.

The SECRETARY OF THE TREASURY.

[Indorsement.]

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
May 21, 1900.

Respectfully forwarded to the President with the request that authorization be granted.

L. J. GAGE, *Secretary.*

Approved May 21, 1900.

WILLIAM MCKINLEY.

[Inclosure.]

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, May 21, 1900.

MEMORANDUM REGARDING PLAGUE, SAN FRANCISCO.

March 8, specimens from alleged case plague presented to Surgeon Kinyoun for examination. Person long resident in city.

March 11, examination completed; diagnosis confirmed.

March 19, 2 additional cases suspected plague under examination by Surgeon Kinyoun. Examination subsequently completed showed negative results, though not positively refuting diagnosis.

April 26, 1 case suspected of being plague, under examination.

May 2, case reported April 26, confirmed: "It is plague."

May 13, 2 additional cases suspected plague.

May 15, 1 case discovered; died of plague on 13th.

May 16, 1 case plague, dead two days after arrival from Stockton. This makes a total, including the 2 not positively confirmed, of 8 cases, all told.

May 19, local board of health officially announces the existence of plague in San Francisco.

May 19, local health office attempts to make inspection Chinatown, without success.

May 20, Japanese begin to accept inoculation with Haffkine; Chinese still refusing. Another case of suspected plague found dead on the 18th, which makes a total of 9, all told.

This letter having been approved by the President, the following telegrams were sent to Surgeon Kinyoun and his assistants for their guidance until the regulations reached them in due course:

[Telegram.]

WASHINGTON, D. C., *May 21, 1900.*

Full regulations of Secretary Treasury, by direction of President, under law of 1890, requiring common carriers to refuse Asiatics and authorizing train inspections, will be wired you about 10 to-night, Washington time.

WYMAN.

Surgeon KINYOUN, *Angel Island, Cal.*

WASHINGTON, D. C., *May 21, 1900.*

By direction of the President, Secretary of Treasury has promulgated the following regulations under act of Congress March 27, 1890: "First, during the existence of plague at any point in the United States the Surgeon-General Marine-Hospital Service is authorized to forbid the sale or donation of transportation by common carriers to Asiatics or other races liable to the disease; second, no common carrier shall accept for transportation any person suffering with plague or any article infected therewith, nor shall common carriers accept for transportation any class of persons who may be designated by the Surgeon-General of the Marine-Hospital Service as being likely to convey the risk of plague contagion to other communities, and said common carriers shall be subject to inspection." Inform transportation companies and direct them under above regulations to refuse transportation to Asiatics, except on your certificate, and instruct border inspectors to inspect trains and prevent Asiatics leaving State without your certificate.

WYMAN,
Surgeon-General, M. H. S.

Surgeon KINYOUN, *Angel Island, Cal.*

WASHINGTON, D. C., *May 21, 1900.*

Inspect all trains leaving California. Examine carefully all Chinese and Japanese. If not satisfied from locality free from plague and entirely free from it themselves, prevent their leaving State. Further instructions to prevent all Asiatics from passing out the State without certificate of Marine-Hospital Service will be wired you by Surgeon Kinyoun to-morrow.

WYMAN, *Surgeon-General.*

(To Acting Asst. Surg. Jenkins, M. H. S., Needles, Cal.; Acting Asst. Surg. McQuesten, M. H. S., Reno, Nev.; Acting Asst. Surg. Mitchell, M. H. S., Yuma, Ariz.; Acting Asst. Surg. McGeer, M. H. S., Ashland, Oreg.)

On May 22 the following regulations were promulgated by authority of the President's approval of the foregoing letter and memorandum:

[Department circular No. 73, 1900. Marine-Hospital Service.]

INTERSTATE QUARANTINE REGULATIONS TO PREVENT THE SPREAD OF PLAGUE IN THE UNITED STATES.

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
Washington, D. C., May 22, 1900.

To medical officers of the Marine-Hospital Service, State and local health authorities, and others concerned:

In accordance with the provisions of the act of March 27, 1890, the following regulations, additional to existing interstate quarantine regulations, are hereby promulgated to prevent the introduction of plague into any one State or Territory or the District of Columbia from another State or Territory or the District of Columbia:

1. During the existence of plague at any point in the United States the Surgeon-General of the Marine-Hospital Service is authorized to forbid the sale or donation of transportation by common carrier to Asiatics or other races particularly liable to the disease.

2. No common carrier shall accept for transportation any person suffering with plague or any article infected therewith, nor shall common carriers accept for transportation any class of persons who may be designated by the Surgeon-General of the Marine-Hospital Service as being likely to convey the risk of plague contagion to other communities, and said common carriers shall be subject to inspection.

3. The body of any person who has died of plague shall not be transported except in an hermetically sealed coffin and by consent of the local health office, in addition to the local representative of the Marine-Hospital Service. Wherever possible, such bodies should be cremated.

L. J. GAGE, *Secretary.*

The action taken by Surgeon Kinyoun is shown in the following telegrams:

SAN FRANCISCO, CAL., *May 22, 1900.*

Telegram received. Orders transmitted to transportation companies and others concerned. Will require bay patrol for the time being, and recommend that authority be granted to employ sufficient launches for night service. Would suggest detail of revenue officer to take charge of this patrol if one can be had immediately for this purpose. Can I have Steward Roehrig until other arrangements are made for steward? Will require considerable funds for current expenses. What action relative to actual expenses of officers and those on duty? Amesse reports. Have assigned him duty epidemic work.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *May 22, 1900.*

Have requested United States marshal to appoint sanitary inspectors as special deputy marshals for enforcement of quarantine regulations. He suggests that the matter must be laid before Attorney-General. Request that representations be made to Attorney-General this effect. Marshal is perfectly willing to do so. Will assist materially in carrying out the regulations.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *May 22, 1900.*

Yesterday 18 Chinese were inoculated, all for the purpose of leaving the city. So far no residents. Continued opposition of Chinese against inspection; all houses and stores closed. State board of health held meeting last night and gave out for publication, local papers, that at present no plague in San Francisco. Garbled accounts of this meeting now used for the purpose of belittling efforts local board of health. So far no house-to-house inspection practicable. Believe existing cordon around the city effective. Police department energetic and acting harmoniously; have notified surrounding towns. Have now placed inspectors Oakland, Alameda, and Port Costa, and began to-day train-inspection service from San Francisco to San Jose. Japanese taking kindly to inoculation. Over 250 yesterday.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *May 22, 1900.*

Rumor to-night injunction to-morrow to suspend orders promulgated to-day. Have district attorney instructed to be prepared to act. Situation in Chinatown is nowise improved. Local board of health has so far accomplished nothing toward house inspection because of opposition. Believe present regulations in force are protection to outside districts. Unless sanitary cordon established around Chinatown, they must be continued.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

To prevent misunderstanding the Bureau sent Surgeon Kinyoun the following telegram on May 23, to which he replied that the summarization was correct and measures were being taken by him in accordance with this telegram; his answer being appended:

WASHINGTON, D. C., *May 23, 1900.*

That there may be no mistake the situation as understood here is summarized as follows: Under regulations issued by Secretary Treasury by direction of President and under law of 1890, transportation of Asiatics by common carriers prohibited without marine-hospital certificate. To carry this out you have four inspectors at railroad crossings, borders of the State, and sanitary inspectors at the exits from the city of San Francisco, and also on trains. The local board of health has a cordon around San Francisco of police and is attempting a house-to-house inspection of Chinatown, and also inoculations. Your insistence upon inoculations is only upon those Asiatics wishing to travel. Wire if there is any inaccuracy in this statement. Collector of customs will be instructed by Secretary to refuse clearance to all vessels leaving coastwise without your certificate and will be wired the substance of Treasury Regulation May 22. Reported here that the few Chinamen who were inoculated were taken very sick and in dying condition. Wire exact facts. Same material has been used without detriment in Honolulu in large quantities. Will endeavor to have your sanitary inspectors as above working made special deputy marshals. Believe that the action of the local board of health as contained in dispatch to New York Herald this morning not to force inoculation on Chinese, but to insist on house-to-house inspection the proper course. Secretary Treasury is taking up matter of marshals and injunction with Attorney-General. Will wire action shortly.

WYMAN.

KINYOUN, *Angel Island.*

SAN FRANCISCO, CAL., *May 23, 1900.*

Bureau telegram to-day summarizes situation. Local board of health has not insisted on compulsory inoculation, only offering it, at the same time attempting to make a house-to-house inspection, both ending in failure. No cases of death reported to local board of health occurring from inoculation; two cases reported where there was fever, disappearing on day after. Police assisting in cordon. Have issued certificates of travel to those who have been inoculated. Never have insisted anyone taking it; purely voluntary. Have offered alternative of requirements of regulations, but always advised inoculations preferable. Strenuous efforts now being made by press to suppress facts and to render nugatory every well-intended effort of local board of health. State board of health requests service to continue; has commended local board of health. Did not, however, specifically recommend house-to-house inspection. Am credibly informed suit injunction filed to-day. If enjoined, railroad companies will not sell any tickets to outside points. Have situation well in hand. Acting harmoniously with State and local authorities.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 23, 1900.*

Following telegram received by Secretary of Treasury from Attorney-General:

"Department of Justice, May 23, 1900. Have directed district attorney at San Francisco to look after interests of the Government in case injunction suit against United States quarantine officer is brought. Please direct surgeon of Marine-Hospital Service in San Francisco to confer with United States District Attorney Coombs as to request for appointment of sanitary inspectors as special deputy marshals. I have notified Coombs that surgeon will call upon him in that matter.—John W. Griggs."

WYMAN, *Surgeon-General.*

KINYOUN, *Angel Island.*

SAN FRANCISCO, CAL., *May 23, 1900.*

General Shafter decides that without Secretary of War's approval will not consent to establishment suspect camp on Angel Island. Recommend such permission be given in event it becomes necessary to remove suspects from city for purpose of keeping under observation.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 24, 1900.*

Orders to Honolulu suspended. Report to Kinyoun for special temporary duty.

WYMAN.

AMESSE, through KINYOUN, *Angel Island, Cal.*

WASHINGTON, D. C., *May 24, 1900.*

Inspection is under law March 27, 1890. Regulations mail to-day. You may inspect all vessels as far as possible from Frisco. Letter follows.

WYMAN.

FOSTER, *Quarantine, Port Townsend, Wash.*

SAN FRANCISCO, CAL., *May 24, 1900.*

Application restraining order filed to-day, returnable to-morrow morning. Have consulted with district attorney giving him all the facts. In event restraining order issued recommend the quarantining of all points of exit State. Believe will be necessary on account of wide dissemination Asiatics over State, thereby endangering country.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 24, 1900.*

Who has made the application for restraining order and what are the terms of the application? Inform district attorney that Attorney-General Griggs gave written opinion July 11, 1898, that law of 1893 does not supersede law of 1890, which is stronger law and is still in force. In accordance with this law the President in writing directed the Secretary Treasury May 21 to cause the regulations to be prepared and issued which were wired you. Full copy has also been mailed. They were prepared in consultation with Solicitor of Treasury. Rush answer.

WYMAN.

Surgeon KINYOUN, *Angel Island, Cal.*

SAN FRANCISCO, CAL., *May 24, 1900.*

Application for restraining order made by secretary Six Companies acting for and in behalf of the Chinese. Am credibly informed and believe Japanese consul also is identified in suit, as coterie of attorneys practicing for these races are all associated bringing suit; restraining order brought both against city board of health and myself. Claims are that Federal Government has exceeded authority in prohibiting free passage of Chinese within State, claiming law of 1890 applies only to interstate traffic, and therefore has no power in the premises. Also demand to be relieved of restriction imposed by board of health, claiming that there is no plague in San Francisco. District attorney states he is giving his whole time to the subject and will be prepared to make strong argument to-morrow.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *May 24, 1900.*

Has collector of customs been directed to refuse clearance to vessels leaving this port? So far have not been informed. Would facilitate matters greatly if such order could be given immediately.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 24, 1900.*

Secretary wired collector May 22 to refuse clearance to coastwise vessels without your certificate.

WYMAN.

Surgeon KINYOUN, *Angel Island, Cal.*

WASHINGTON, D. C., *May 24, 1900.*

There have been, since March 8, 6 positively determined cases of plague San Francisco. Restrictive measures instituted. Letter follows. No cases reported as existing now.

WYMAN.

LICEAGA, *President Superior Board Health, Mexico.*

SAN FRANCISCO, CAL., *May 25, 1900.*

Application restraining order argued to-day before Judge Morrow; taken matter under advisement; all probability render decision to-morrow morning. Believe publicity situation now reaching people through courts will do good. Train and vessel inspection service now working smoothly. Board of health making house-to-house inspection with few inspectors. Case reported dead to-day; Chinese diagnosis beriberi; probability plague; same diagnosis made in last case.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *May 26, 1900.*

Serious difficulties encountered obtaining launches for bay patrol at reasonable rental. Recommend we authorize purchase two launches.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *May 26, 1900.*

Respectfully suggest that if Haffkine prophylactic officially recommended regulations be immediately issued defining its value as a quarantine measure for guidance of quarantine officers here. Have been so far accepting inoculation as evidence of immunity, allowing travel thereon. Hastings reports detention of fifteen days of all Chinese and Japanese, notwithstanding Haffkine. Regulations as they now stand demand this. Believe safe regulations could be made allowing Haffkine in lieu of detention, provided officer issuing certificate satisfies himself not directly exposed to contagion of plague.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 26, 1900.*

McKay has been instructed regarding vessels. San Francisco and the whole State guarded since 19th. Special regulations issued. Copy mailed you to-day.

WYMAN.

DECKER, *San Diego, Cal.*

WASHINGTON, D. C., *May 26, 1900.*

Your action stated telegram May 20 regarding inspection San Francisco vessels approved. Honor certificates of service officers at San Francisco.

WYMAN.

HASTINGS, *Astoria, Oreg.*

WASHINGTON, D. C., *May 26, 1900.*

Japanese authorities think all Japanese should not be included in the travel restrictions. There are some who do not live in Chinatown and are not brought into contact with the Chinese. Wire whether you deem it advisable to make exception of these, and you are authorized to do so at once if you deem it safe.

WYMAN.

KINYOUN, *San Francisco, Cal.*

SAN FRANCISCO, CAL., *May 26, 1900.*

Replying telegram relative Japanese, have made exceptions to inoculations to all Japanese which can safely be done. Don't think advisable under present conditions to amend modifications, because these parties can obtain certificates provided they have not come from within the affected area. Would make same provisions for Chinese under similar conditions.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 26, 1900.*

Institute careful inspection all San Francisco vessels, detaining if necessary Mongolians not provided with Marine-Hospital Service certificates.

WYMAN.

MCKAY, *San Diego Quarantine, San Diego, Cal.*

WASHINGTON, D. C., *May 26, 1900.*

There have been since March 8 eight or nine cases plague in San Francisco, all among the Chinese. Since the 19th Federal action has been taken to prevent any Chinese leaving State of California or San Francisco by water or by rail. House-to-house inspection now going on in Chinatown by local board of health. Will inform you as to discoveries. Letter follows.

WYMAN.

Dr. F. MONTIZAMBERT,
Director-General Public Health, Ottawa, Canada.

SAN FRANCISCO, CAL., *May 26, 1900.*

Information just received that threats have been made to run down and destroy launches engaged in patrol duty. Recommend that Secretary Navy detail whatever vessels necessary to cover this point. Urgent action immediately required.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

[Indorsement on above telegram.]

TREASURY DEPARTMENT,
Washington, May 26, 1900.

Situation is serious. Would appreciate any help you could give us.

O. L. SPAULDING,
Acting Secretary.

SECRETARY OF THE NAVY, *Washington.*

[Telegram.]

NAVY DEPARTMENT,
Washington, May 26, 1900.

Cooperate with Marine-Hospital Service protecting its patrol boats. Surgeon Kinyoun will see you.

CROWNINSHIELD.

Captain GLASS, *Naval Training Station, San Francisco.*

WASHINGTON, D. C., *May 26, 1900.*

Telegram just received. Wire what launches are engaged in patrol and if naval vessels are necessary night as well as day. Wire the orders you desire given them. Why can not revenue cutter be used? In emergency call on collector for it.

WYMAN.

Surgeon KINYOUN, *San Francisco, Cal.*

TREASURY DEPARTMENT,
Washington, D. C., May 26, 1900.

Use revenue cutter to protect the water patrol instituted and supervised by Surgeon Kinyoun under Department regulations and orders when cutter can be spared from other imperative duty and on request of Dr. Kinyoun.

O. L. SPAULDING, *Acting Secretary.*

COLLECTOR OF CUSTOMS, *Son Francisco.*

SAN FRANCISCO, CAL., *May 26, 1900.*

Three launches required in addition to boats now on hand for night duty. Day patrol maintained by the launch *Perkins* and steamer *Sternberg* when can be spared. Am using *Perkins* also at night with extra crew.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *May 27, 1900.*

Night patrol more urgent than day. Can with aid of police and my boats cover ground during daytime. Would require navy vessels, preferably launches, to patrol the water front, to prevent Chinese crossing bay, placing sanitary inspector on each vessel. Revenue cutter not available at night.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

NEEDLES, CAL., *May 27, 1900.*

Services of constable necessary. Recommend allowance $1.50 daily for his assistance. Otherwise inspector not effective here. Wire orders.

COFER.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 27, 1900.*

Allowance, $1.50 daily, for assistance granted. Remain at Needles until you hear from me to-morrow, and wire if any difficulties.

WYMAN.

Assistant Surgeon COFER, *Needles, Cal.*

NEEDLES, CAL., *May 26, 1900.*

Allowance removes difficulties; will remain as ordered.

COFER.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 28, 1900.*

Proceed to San Francisco for conference with Kinyoun with a view to uniformity of measures on border. Kinyoun will be directed to use your services in southern California. All measures in California under him. You will report to him.

WYMAN.

Assistant Surgeon COFER, *Needles, Cal.*

NEEDLES, CAL., *May 28, 1900.*

Leave immediately. Arrive San Francisco Wednesday morning.

COFER.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 28, 1900.*

Cofer, now at Needles, ordered to San Francisco for conference with you, has been ordered to report to you. Present orders to the border inspectors are to prevent egress of Asiatics. This may require modification. Wire recommendations after conferring with Cofer. Do not use Cofer for work inside San Francisco. You may have him inspect Ashland and Yuma, if necessary, after which should be sent to southern California.

WYMAN.

KINYOUN, *San Francisco, Cal.*

SAN FRANCISCO, CAL., *May 28, 1900.*

State board of health meets here to-day; has conference with city board of health and business men. Party from New York seen. Given him full data of facts. He is inclined to state that at present there is no plague in San Francisco. President of city board of health, also myself, impressed upon him such statement could not be possibly made, on account of lack of definite information. Have informed State board of health substance of court's order and abandonment of inspection. State board of health has demanded that city board of health immediately quarantine all Chinese. Merchants and others now begin to see gravity of situation. They have promised full and material assistance. Have public meeting to-night. Action of Service commended by everyone, even authorities Texas. Will continue observation movement Chinese without requirement of certificate over railways leaving city.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

FIRST INJUNCTION—WONG WAI VERSUS WILLIAMSON ET AL.

On May 24, as will be seen by preceding telegram from Surgeon Kinyoun, an application was made for a restraining order from the United States courts against the authorities instituting quarantine, the claim being that they were illegally prohibiting travel within the State of California on the part of the Chinese.

On May 28 the following telegram was received from Surgeon Kinyoun, showing that Judge Morrow, of the United States court, had granted the restraining order prayed for by the Chinese and Japanese:

[Telegram.]

SAN FRANCISCO, CAL., *May 28, 1900.*

Judge Morrow just handed down decision granting restraining order prayed for by Chinese and Japanese, basing claims on following: Regulations promulgated class legislation as applied to Asiatics only, thereby denying them equal protection of law; order of President was general, and does not declare that plague does now exist in San Francisco or in any point in California; no findings of the proper local authorities—that is, the board of supervisors of San Francisco—that plague does exist in San Francisco. Decision also states that under orders promulgated by President's order Federal authorities are acting without right or authority in stopping travel from San Francisco to other places. Local board of health, being prohibited to act, can not now cooperate with them under law 1893.

Haffkine inoculations decided adversely on same decision as to vaccination. Judge refuses to hear evidence whether or not plague is or is not now existing in San Francisco. Believe now a large exodus Chinese and Japanese will begin to surrounding country and States. Local board of health has not so far been able to accomplish anything toward a true house-to-house inspection. No segregation of those exposed nor any provision for care of them; no sanitary cordon around infected area; no restraint of Chinatown, where plague infection does now exist. Under decision, believed situation to United States very grave. Under this decision persons can not practically be detained in quarantine unless found actually suffering with disease. The decision is far-reaching, and practically nullifies all acts of Federal Government within a State, as well as preventing cooperation, aid, and assistance. Most serious blow Service has received since assuming quarantine measures. Am requested by district attorney and others not to inform Bureau that my belief is that plague infection exists in San Francisco, because of probable action by General Government and surrounding States. On advice district attorney, have ordered all inspections to cease. As Bureau has all facts concerning situation, will await instructions. Rush answer.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

To which the following reply was made:

[Telegram.]

WASHINGTON, *May 28, 1900.*

Consult district attorney and local board health with view to devising plan to meet the situation. Suggest board of health or board of supervisors declare plague existent. If will not do so until new case is found, use every exertion to find one. Then declare an area under quarantine and place cordon around it with the usual other provisions. Explain why board of supervisors are proper local authorities and mail full text injunction proceedings. Wire any suggestions. Have taken matter up with authorities here.

WYMAN.

Surgeon KINYOUN, *San Francisco, Cal.*

The following telegraphic correspondence then ensued:

SAN FRANCISCO, CAL., *May 28, 1900.*

Have wired sanitary inspectors on borders to suspend any orders given them by me and await orders from Bureau. Please wire them instructions.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 29, 1900.*

Have wired each of the four inspectors on the border to make reports to you and to get their instructions from you.

WYMAN.

KINYOUN, *San Francisco.*

SAN FRANCISCO, CAL., *May 29, 1900.*

The local board of health lays before board of supervisors resolution declaring existence plague, San Francisco. The local board of health afraid to establish cordon around infected district on account of injunction. The State board will take action for California to-day, unless prompt measures at once instituted by the local board of health. Under new charter requires board supervisors to make official. So rules United States judge. Board supervisors meets the local board of health and merchants in mass meeting this morning at 11. The State board requests I keep force together few days await developments. Believe injunction can be dissolved or modified if the United States district attorney be ordered by the Department of Justice to press matter before court on grounds that court refused to consider evidence of presence plague, San Francisco, and charging Service officers compelling Haffkine inoculations.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *May 29, 1900.*

Board of supervisors passed ordnance to-day authorizing local board health to quarantine and take such measures as may be necessary against prevention and spread epidemic disease. Board immediately orders absolute cordon around Chinatown. Now commencing to be enforced. Southern Pacific Railway on its own accord refuses sale of tickets to Chinese until cordon established. What instructions must I give sanitary inspectors on State borders?

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *May 30, 1900.*

Now that plague officially announced, wire instructions regarding my duties relative shipment of freight from Frisco to points in California and to surrounding States. Have I authority over freight and passengers leaving port by water to ports in State or other States under regulations law 1890?

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *May 30, 1900.*

Proceed San Francisco. Confer with Kinyoun. Make necessary arrangements at your port.

WYMAN.

Assistant Surgeon COFER, *Los Angeles, Cal.*

WASHINGTON, D. C., *May 30, 1900.*

Cofer ordered. Will answer fully to-morrow regarding freight, etc. In meantime if this or orders to border inspectors are urgent institute such measures temporarily as may be carried out under interstate regulations under ninety-three law and any part of the regulations wired you under ninety law that are not negatived by the restraining order.

WYMAN.

Surgeon KINYOUN, *San Francisco, Cal.*

Below will be found two letters from Surgeon Kinyoun, the first transmitting a copy of the restraining order and the second transmitting Judge Morrow's decision on which the said order was issued:

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
San Francisco, Cal., May 30, 1900.

SIR: I have the honor to transmit herewith for the Bureau's information a copy of the order of the United States circuit court restraining me from interfering in any way with the Chinese of this port.

Respectfully,

J. J. KINYOUN,
Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure.]

In the United States circuit court, ninth circuit, northern district of California.

WONG WAI, COMPLAINANT,
v.
John M. Williamson, Rudolph W. Baum, Louis Bazet, Wm. D. McCarthy, Vincent Buckley, George W. Mendell, Wm. P. Sullivan, jr., and J. J. Kinyoun, defendants.

The President of the United States to John M. Williamson, Rudolph W. Baum, Louis Bazet, Wm. D. McCarthy, Vincent Buckley, George W. Mendell, Wm. P. Sullivan, jr., and J. J. Kinyoun, greeting:

Whereas on the 28th day of May, 1900, an order was made by the above-entitled court enjoining you and each and all of you, and each of your agents, servants, assistants, inspectors, employees, and other subordinates during the pendency of this suit, and until the further order of this court, from certain acts in said order and hereinafter more particularly mentioned; and that you, and each and all of you, and each and all of your agents, servants, assistants, inspectors, employees, and other subordinates do desist and refrain from said acts.

Now, therefore, this is to command you, the respondents in the above-entitled suit, and each and all of you, and each and all of your agents, servants, assistants, inspectors, employees, and other subordinates, that you and each and all of you, and each and all of your agents, servants, assistants, inspectors, employees, and other subordinates, do absolutely desist and refrain from inoculating the said Wong Wai, complainant herein, and from inoculating any of the Chinese residents of the city and county of San Francisco against the will of said complainant or against the will of said Chinese residents of said city and county with Haffkine prophylactic; and that each and all of you, and each and all of your agents, servants, assistants, inspectors, employees, and subordinates, do absolutely desist and refrain from imprisoning, restraining, or confining the said complainant, and from imprisoning, restraining, or confining any of said Chinese residents of the city and county of San Francisco within the limits of said city and county, and from otherwise interfering with or restraining said complainant or any of said Chinese residents of said city and county in the exercise of their personal liberty to freely pass from said city and county of San Francisco to other parts of the State of California, and from requiring said complainant or any of said Chinese residents of said city and county to submit to inoculation with said Haffkine prophylactic under penalty of being confined, or restrained, or restricted by you or any of you, or any of your agents, servants, assistants, inspectors, employees, or other subordinates, in their right to freely pass from said city and county of San Francisco to other parts of the State of California; and that you do absolutely desist and refrain from committing any of the acts and from carrying into execution any of the threats set forth in the bill of complaint filed by the complainant herein.

Witness: The Hon. Melville W. Fuller, Chief Justice of the United States of America, and the seal of said court this 28th day of May, 1900.

Attest my hand and the seal of said court the day and year last above written.

[SEAL.]
SOUTHARD HOFFMAN,
Clerk U. S. Circuit Court, Northern District of California.

A true copy. Attest:
[SEAL.]
SOUTHARD HOFFMAN,
Clerk U. S. Circuit Court, Northern District of California.

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
San Francisco, Cal., May 31, 1900.

SIR: As directed in Bureau telegram, I have the honor to transmit herewith a copy of the decision of Judge Morrow on the complaint of Wong Wai *v.* Williamson et al.

Respectfully,

J. J. KINYOUN,
Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosure.]

In the circuit court of the United States, ninth circuit, northern district of California.

WONG WAI, COMPLAINANT, *v.* JOHN M. WILLIAMSON, Rudolph W. Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, William P. Sullivan, jr., and J. J. Kinyoun, defendants. } No. 12937.

OPINION ON ORDER TO SHOW CAUSE WHY INJUNCTION SHOULD NOT ISSUE.

Reddy, Campbell & Metson, solicitors for complainant. Maguire & Gallagher, Samuel M. Shortridge, John F. Bennett, and Robert Ferral, of counsel. Frank L. Coombs, United States attorney, solicitor for the defendant J. J. Kinyoun. C. L. Weller, assistant district attorney of the city and county of San Francisco, solicitor for the defendants other than J. J. Kinyoun.

Before Morrow, circuit judge, and Hawley and De Haven, district judges.

MORROW, circuit judge, delivered the opinion of the court:

This action is brought by the plaintiff, a subject of the Emperor of China, residing in the city and county of San Francisco, State of California, against John M. Williamson, Rudolph W. Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, William P. Sullivan, jr., the acting board of health of said city and county, and J. J. Kinyoun, the acting quarantine officer of the United States Government for the port of San Francisco, to restrain the defendants, and all persons acting in their behalf, from requiring the complainant or any of the Chinese residents of said city and county to submit to inoculation with the serum known as the "Haffkine prophylactic," and from imprisoning, restraining, or confining the complainant or any of said Chinese residents within the limits of said city and county until they have submitted to such inoculation, and from interfering with or restraining said Chinese residents in the exercise of their personal liberty to freely pass from said city and county to other parts of the State of California.

It is alleged in the bill that on or about the 18th day of May, 1900, the defendants comprising the said board of health adopted and passed a resolution authorizing, directing, and requiring the inoculation of all the Chinese residents of said city and county with the said Haffkine prophylactic; that the requirements of said resolution are now being enforced by said defendants, and the said Chinese residents are being restrained and imprisoned within the territorial limits of said city and county unless they submit to said inoculation. It is alleged that said Haffkine prophylactic is a poisonous substance, made and compounded from living bacteria of the bubonic plague; that it is administered to human beings by hypodermic injection into the tissues of the body, and when so injected produces a severe reaction and causes great pain and distress generally, a sudden and great rise of temperature, and great depression, which sometimes continues increasing in severity until it causes death; that the sole and only purpose for which such inoculation is claimed to be effective or useful is to prevent persons from contracting the bubonic plague if exposed thereto after having been so inoculated. It is also alleged that there is not now and never has been any case of bubonic plague in said city and county, or in the State of California, nor any germs or bacteria of said disease. The complainant avers that he has never had or contracted said bubonic plague, and has never been exposed to the danger of contracting it, and complains that the action of the said defendants in confining and imprisoning the said Chinese residents of said city and county is a wrongful and oppressive interference with their personal liberty and their right to the pursuit of their lawful business. It is further alleged that said resolution adopted by the defendants is wholly invalid, void, and contrary to the Constitution and laws of the United States and of the laws of the State of California; that said resolution and order is not enforced against other residents of said city and county than those of the Mongolian race, and its enforcement deprives the said Chinese residents of said city and county of the equal protection of the laws and of their rights and liberties under the Constitution of the United States and the laws and treaties passed and adopted pursuant thereto.

The complainant brings this suit also in behalf of the 25,000 persons of the Chinese race now residing in said city and county.

The prayer of the bill is that an injunction be granted enjoining and restraining the defendants, their agents, employees, and all persons acting in their behalf, from imprisoning, restraining, or confining the complainant, or any of the Chinese residents of said city and county of San Francisco, within the limits of said city and county, or otherwise interfering with or restraining the complainant or any of said Chinese residents of said city and county in the exercise of their personal liberty to freely pass from said city and county of San Francisco to other parts of the State of California, and from requiring the complainant or any of said Chinese residents of said city and county to submit to inoculation with said Haffkine prophylactic under penalty of being so confined or restrained or restricted in their right to freely pass from said city and county of San Francisco to other parts of the State of California.

Among the affidavits in support of the bill is one by Louis Quong, who declares that he is a person of Chinese extraction, born in the State of California of Chinese parents; that he has been refused permission by the defendants to leave the city and county of San Francisco unless he first obtains a certificate from the board of health of the said city and county countersigned by J. J. Kinyoun, quarantine officer of the United States for the port of San Francisco, to the effect that the affiant has been inoculated with the preparation known as Haffkine prophylactic.

Upon the filing of the bill of complaint, together with affidavits supporting the allegations therein contained, the court issue an order to the defendants to show cause why an injunction should not issue restraining the defendants from committing the act and carrying into execution the threats set forth in the bill of complaint. To the order to show cause no return has been made as required by the rules of practice in equity cases, but in lieu thereof the defendants, John M. Williamson, Rudolph Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, William P. Sullivan, jr., composing the board of health of the city and county of San Francisco, have produced a copy of a resolution adopted by the board on May 18, 1900, as follows:

"*Resolved,* That it is the sense of this board that bubonic plague exists in the city and county of San Francisco, and that all necessary steps already taken for the prevention of its spread be continued, together with such additional measures as may be required."

The defendant J. J. Kinyoun, the acting quarantine officer of the United States at the port of San Francisco, in response to the order, has produced the following telegram:

"WASHINGTON, D. C., *May 21, 1900.*

"Surgeon KINYOUN, *Angel Island, Cal.*

"By direction of the President, Secretary of Treasury has promulgated the following regulations under act of Congress March 27, 1890: First, during existence of plague at any point in the United States the Surgeon-General Marine-Hospital Service is authorized to forbid the sale or donation of transportation by common carriers to Asiatics or other races liable to the disease. Second, no common carrier shall accept for transportation any person suffering with plague or any article infected therewith, nor shall common carriers accept for transportation any class of persons who may be designated by the Surgeon-General of the Marine-Hospital Service as being likely to convey the risk of plague contagion to other communities, and said common carriers shall be subject to inspection.

"Inform transportation companies and direct them under above regulations to refuse transportation to Asiatics except on your certificate, and instruct bonded inspectors to inspect trains and prevent Asiatics leaving State without your certificate.

"WYMAN,
"*Surgeon-General Marine-Hospital Service.*"

No objections being offered to these documents as constituting the return of the defendants, they will be so considered.

The court suggested at the hearing the question whether, upon the facts stated in the bill of complaint, an injunction would lie. Thereupon a parole exception was taken to the bill. After further investigation the court is of the opinion that it is the proper remedy. The cause of action is not merely that the complainant is deprived of his personal liberty. He and a number of others similarly situated are being deprived by the defendants of their right to travel from San Francisco to other parts of the State in the pursuit of lawful business, and this right, it is alleged, has a pecuniary value to the complainant in excess of the amount required to give this court jurisdiction of the case. The permission to travel being by the acts of the defendants coupled with an alleged unlawful condition or restriction, it is the province of the court to inquire into the facts and remove the restriction if found unlawful. This is undoubtedly the principle involved in the numerous cases where courts have granted injunctions to relieve parties from the restrictions and pecuniary injuries inflicted by boycotts, lockouts, and strikes. (Wire Co. *v.* Murray, 80 Fed., 811; Mackall *v.* Ratchford, 82 Fed., 41; United States *v.* Debs, 64 Fed., 724; In re Debs, 158 U. S., 573; United States *v.* Sweeney, 95 U. S., 434.)

In our opinion the bill is sufficient, and the parole exception must be overruled.

The defendants, constituting the board of health of the city and county of San Francisco, contend that they are justified in their action with respect to the matter in controversy under their authority as a board acting pursuant to the resolution of the board of May 18, 1900.

The charter of the city and county of San Francisco provides, in Article X, for a department of public health under the management of a board of health consisting of seven members. Section 3 of the article provides that the board of health shall have the management and control of the city and county hospitals, almshouses, ambulance service, municipal hospitals, receiving hospitals, and of all matters pertaining to the preservation, promotion, and protection of the lives and health of the inhabitants of the city and county. Section 4 provides, among other things, that the board shall enforce all ordinances, rules, and regulations which may be adopted by the supervisors for the carrying out and enforcement of a good sanitary condition in the city and county and for the protection of the public health, and the board is required to submit to the supervisors, from time to time, a draft of such ordinances, rules, and regulations as it may deem necessary to promote the objects mentioned in the section.

By section 1 of Article II of the charter, the legislative power of the city and county of San Francisco is vested in a legislative body designated as the board of supervisors, and in section 8 it is provided that every legislative act of the city and county shall be by ordinance. It thus appears that suitable provision has been made in the city charter for the necessary legislation providing rules and regulations to secure proper sanitary conditions in the city and for the protection of the public health, but we are not advised that the board of supervisors has taken any action whatever in that direction, and the resolution of the board of health furnished to the court fails to disclose the methods it has adopted for that purpose under the conditions it has declared to exist. We need not, however, dwell upon the manifest lack of legislative authority to enable the board of health to deal with this important subject. It is sufficient for the present purpose to mention the fact as one of the features of the situation to be considered in connection with the regulations which the complainant alleged have been imposed upon him and other Chinese residents of the city by the defendants.

It appears that there are about 25,000 Chinese residents in the city of San Francisco, and while it is well known that a larger number of these people are domiciled within the area designated as the Chinese quarter, nevertheless there are a great many scattered over the city engaged in various employments. No restrictions have been placed upon any of the Chinese residents in passing from one part of the city to the other, nor has any house, block, or section of the city been declared infected or unsanitary. There is, therefore, no fact established by the board of supervisors or by the board of health from which an inference might be drawn that any particular class of persons, or persons occupying a particular district, were liable to develop, or in danger of developing, the plague. The restriction is that no Chinese person shall depart from the city without being inoculated with the serum called "Haffkine prophylactic." The city has a population of about 350,000, but the restriction does not apply to any of the inhabitants other than Chinese or Asiatics, and the inhabitants other than Chinese or Asiatics are permitted to depart from and return to the city without being subject to the inoculation imposed upon the Chinese inhabitants. This restriction, it is alleged, discriminates unreasonably against the complainant and other Chinese residents, confines them within the territorial limits of the city and county, and deprives them of their liberty, causing them great and irreparable loss and injury.

The conditions of a great city frequently present unexpected emergencies affecting the public health, comfort, and convenience. Under such circumstances, officers charged with the duties pertaining to this department of the municipal government should be clothed with sufficient authority to deal with the conditions in a prompt and effective manner. Measures of this character, having a uniform operation and reasonably adapted to the purpose of protecting the health and preserving the welfare of the inhabitants of a city, are constantly upheld by the courts as valid acts of legislation, however inconvenient they may prove to be, and a wide discretion has also been sanctioned in their execution. But when the municipal authority has neglected to provide suitable rules and regulations upon the subject, and the officers are left to adopt such methods as they may deem proper for the occasion, their acts are open to judicial review, and may be examined in every detail to determine whether individual rights have been respected in accordance with constitutional requirements. This proposition is too clear to require discussion. Indeed, the inquiry has been extended to acts of the legislature and city ordinances for the purpose of determining whether they are appropriate to the end in view.

In the recent case of Blue *v.* Beach (56 N. E., 89) the supreme court of Indiana had under consideration a law of the State and an ordinance of the city of Terre Haute, prohibiting persons from attending the public schools who had not been vaccinated. The court sustained the validity of the measures, but in arriving at that conclusion it states very clearly the principles and limitations involved in such legislation. It says:

"As a general proposition, whatever laws or regulations are necessary to protect the public health and secure public comfort is a legislative question, and appropriate measures intended and calculated to accomplish these ends are not subject to judicial review. But, nevertheless, such measures or means must have some relation to the end in view, for under the mere guise of the police power, personal rights and those pertaining to private property will not be permitted to be arbitrarily invaded by the legislative department, and consequently its determination under such circumstances is not final, but is open to review by the courts. If the legislature in the interests of the public health enacts a law and thereby interferes with the personal rights of an individual—destroys or impairs his liberty or property—it then, under such circumstances, becomes the duty of the courts to review such legislation and determine whether it in reality relates to and is appropriate to secure the object in view; and in such an examination the court will look to the substance of the thing involved, and will not be controlled by mere forms."

In the light of these well-established principles the action of the defendants as described in the bill of complaint can not be justified. The regulations they have adopted appear to be without legislative authority, but, assuming that they have the sanction of a general authority under the resolution of May 18, 1900, still they can not be sustained. They are not based upon any established distinction in the conditions that are supposed to attend this plague, or the persons exposed to its contagion, but they are boldly directed against the Asiatic or Mongolian race as a class, without regard to the previous condition, habits, exposure to disease, or residence of the individual; and the only justification offered for this discrimination was a suggestion made by counsel for the defendants in the course of the argument that this particular race is more liable to the plague than any other. No evidence has, however, been offered to support this claim, and it is known to be a fact. This explanation must therefore be dismissed as unsatisfactory.

There is, however, a further and a more serious objection to these regulations adopted by the defendants. It appears from the instructions of Dr. Walter Wyman, the Supervising Surgeon-General of the Marine-Hospital Service, that the Haffkine prophylactic is not designed as a preventive after a person has been exposed to the disease. On the contrary, its administration under such a condition of the human system is declared to be dangerous to life. It is administered for the purpose of preventing contagion from exposure after inoculation, and for that alone. A person about to enter an infected place should therefore secure this treatment, but a person departing from an infected place should not be so treated. For the latter contingency Dr. Wyman prescribes another and very different remedy, namely, inoculation with the Yersin serum. The two treatments are thus described in the instructions issued by the Supervising Surgeon-General of the Marine-Hospital Service:

"The Haffkine material should not be used if the person has been definitely exposed to the plague or is thought to be in the incubative period, for if by chance he is already infected the Haffkine injection may produce fatal results. Therefore the Haffkine material should be used as a preventive on persons before their exposure, while the Yersin treatment may be used either before or after exposure or while a person is suffering with the disease."

"NOTE.—The Haffkine material should not be used on suspects held in quarantine or on persons who have been definitely exposed to the plague, but is applicable to persons who are liable to be brought into contact with plague, and before such possible contact, as quarantine officers and attendants, health officers and employees, and persons in a community where there is danger of the introduction and spread of the disease."

It therefore appears that the administration of Haffkine prophylactic to Chinese persons departing from San Francisco has no relation to the public health of the inhabitants of this city, and can not be sustained by any such claim on the part of its board of health.

The defendant, J. J. Kinyoun, as quarantine officer of the United States at the port of San Francisco, justifies his action upon the authority of the telegram received by him from Dr. Wyman, the Supervising Surgeon-General Marine-Hospital Service, dated May 21, 1900, and it is contended that the instructions contained in this telegram are based upon the provisions of the act of March 27, 1900.[a] (26 Stat., 31.) Section 1 of that act provides as follows:

"That whenever it shall be made to appear to the satisfaction of the President that cholera, yellow fever, smallpox, or plague exists in any State or Territory, or in the District of Columbia, and that there is danger of the spread of such disease into other States, Territories, or the District of Columbia, he is hereby authorized to cause the Secretary of the Treasury to promulgate such rules and regulations as in his judgment may be necessary to prevent the spread of such disease from one State or Territory into another, or from any State or Territory into the District of Columbia, or from the District of Columbia into any State or Territory, and to employ such inspectors and other persons as may be necessary to execute such regulations to prevent the spread of such disease. The said rules and regulations shall be prepared by the Supervising Surgeon-General of the Marine-Hospital Service under the direction of the Secretary of the Treasury."

It will be observed that the statute is open to the interpretation that the promulgation of rules and regulations to prevent the spread of the disease named in the statute is made to depend upon the fact that it has been made to appear to the satisfaction of the President that the disease exists in the particular State or Territory where the regulations are to be enforced. If this is the proper interpretation to be placed upon the statute, then the enforcement of any rules and regulations is open to the objection that it does not appear that the President has found that the plague exists in San Francisco or in California, or, indeed, anywhere else in the United States; nor does it appear that the Supervising Surgeon-General has so found or that he has prescribed any regulations requiring the administration of Haffkine prophylactic under any condition, or to parties seeking transportation from one place in the State to another place in the same State or from one State to another. The only restriction imposed by the Surgeon-General is that transportation companies shall refuse transportation to Asiatics unless provided with the certificates of the defendant, Kinyoun. What examination or treatment is required to entitle a Chinese person to this certificate is not provided in the instructions of the Supervising Surgeon-General. The instructions are therefore plainly insufficient in these essential particulars to justify the defendant Kinyoun in the restrictions and conditions he has placed upon the complainant and those represented in the bill of complaint.

But, passing by these objections, we come again to the discriminating character of the regulations. They are directed against the Asiatic race exclusively, and by name. There is no pretense that previous residence, habits, exposure to disease, method of living, or physical condition has anything to do with their classification as subject to the regulations. They are denied the privilege of traveling from one place to another, except upon conditions not enforced against any other class or people; and this privilege is denied, it appears, to Chinese persons born in the

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[a] 1890.

United States as well as to those born elsewhere. As against this regulation the complainant, on behalf of himself and others similarly situated, invokes the equal protection of the laws. As the case is here presented how can the court deny them this right?

In the case of Ah Kow *v.* Nunan (before Mr. Justice Field in this court, 5 Saw., 552), the plaintiff had been convicted in a court in San Francisco and sentenced to pay a fine of $10, or, in default of such payment, to be imprisoned five days in the county jail. The defendant, as sheriff of the city and county of San Francisco, had charge of the jail, and during the imprisonment of the plaintiff, cut off his queue, under the requirements of an ordinance of the city providing for the cutting or clipping of the hair of prisoners to a uniform length of 1 inch from the scalp. It was claimed on the part of the defendant that the ordinance was in the nature of a sanitary regulation, but the court found that its real purpose was directed against the Chinese, who regarded the deprivation of the queue as a mark of disgrace and, according to their religious belief, attended with misfortune and suffering after death. The court held that this ordinance was in violation of the provisions of the fourteenth amendment to the Constitution; that the equality of protection secured by this amendment to every one while within the United States implies not only that the courts of the country shall be open to him on the same terms as to all others, for the security of his person or property, the prevention or redress of wrongs, and enforcement of contracts, but that no charges or burdens shall be laid upon him which are not equally borne by others, and that in the administration of criminal justice he shall suffer for his offenses no greater or different punishment. With equal force it may be said that he shall be subject to the same restrictions and conditions for the benefit of the public health.

In the case of In re Lee Sing (43 Fed., 359) this court had before it an ordinance of the city and county of San Francisco prescribing a certain portion of the city for the residence of Chinese. It was objected there, as here, that the ordinance was a discrimination against the Chinese residents of the city and contrary to the provisions of the fourteenth amendment to the Constitution. Judge Sawyer, in commenting upon this ordinance, disposed of the question involved with this brief and pointed observation:

"That this ordinance is a direct violation of not only the express provisions of the Constitution of the United States in several particulars, but also of the express provisions of our several treaties with China and of the statutes of the United States, is so obvious that I shall not waste more time or words in discussing the matter. To any reasonably intelligent and well-balanced mind discussion or argument would be wholly unnecessary and superfluous. To those minds which are so constituted that the invalidity of this ordinance is not apparent upon inspection and comparison with the provisions of the Constitution, treaties, and laws cited discussion or argument would be useless."

It was accordingly determined that the authority to pass the order was not within the legitimate police power of this State.

The observations of the court in these two cases are not entirely inappropriate to the regulations of the board of health and the instructions of the Supervising Surgeon-General of the Marine-Hospital Service offered by the defendants as authority for the regulations they are now engaged in enforcing against the Chinese inhabitants of the city.

As said by the court of appeals of the State of New York, in the matter of Jacobs (98 N. Y., 108), speaking of the police power of the State:

"Under it the conduct of an individual and the use of property may be regulated so as to interfere, to some extent, with the freedom of the one and the enjoyment of the other; and in cases of great emergency, engendering overruling necessity, property may be taken or destroyed without compensation and without what is commonly called due process of law. The limit of the power can not be accurately defined, and the courts have not been able or willing definitely to circumscribe it. But the power, however broad and extensive, is not above the Constitution. When it speaks its voice must be heeded. It furnishes the supreme law, the guide for the conduct of legislators, judges, and private persons, and so far as it imposes restraints the police power must be exercised in subordination thereto."

It follows, from these considerations, that the defendants have failed to justify their action in the premises and that an injunction must issue as prayed for in the bill of complaint.

I am authorized to say that Judge Hawley, of Nevada, and Judge De Haven, of California, who participated in the hearing of this cause, concur in this opinion.

(Indorsed:) Filed May 28, 1900. Southard Hoffman, Clerk.

HAFFKINE INOCULATIONS.

The first restraining order appears to have been, in the main, directed against the local board of health on the grounds that said local board had no authority invested in them under the law to declare an epidemic, but the said epidemic must be declared by the supervisors. This was done by this body, and it was then believed that the objections of the court had been duly met and the measures which had previously been instituted to suppress the spread of the disease were pushed with renewed vigor. Serious objection was raised to these measures on the part of the Japanese legation in Washington, and it may be appropriate to insert here the answer of the Bureau to these objections.

Treasury Department,
Office Supervising Surgeon-General Marine-Hospital Service,
Washington, June 3, 1900.

Sir: The Bureau has received letters, of May 25 and June 1, from the honorable the Secretary of State, addressed to yourself, and inclosing copies of notes from the Japanese chargé d'affaires at this capital, complaining of the action of the Surgeon-General of the Marine-Hospital Service in prohibiting Japanese subjects from leaving San Francisco without being inoculated as a precaution against the bubonic plague, and protesting against the alleged discrimination against Japanese subjects in San Francisco in the enforcement by the national and local health authorities of the measures adopted to prevent the spread of this disease.

I have respectfully to state that no orders have been issued by this Bureau requiring these preventive inoculations. As a temporary measure, the plague having been officially declared by the local board of health existent in Chinatown, San Francisco, inspections and some restraints of travel were imposed in regard to Asiatics, inasmuch as the plague had been found to exist only among the Chinese in Chinatown, where also dwelt a number of Japanese. This action was taken pending the declaration by the local board of health of an infected area and the establishment of a cordon, and was necessary for the protection of adjoining States because of the anticipated exodus from Chinatown following the declaration of said local board. It was an emergency measure and not intended to discriminate against those who were not resident in Chinatown, and I have been informed by Surgeon Kinyoun that in its enforcement exemptions were made in favor of those who had not been within the infected area. Later the local board of health, under authority of the board of supervisors, declared the presence of plague in Chinatown, and placed a cordon around that section, and the orders above referred to were rescinded.

There has never been an intent on the part of this Bureau to discriminate against Japanese residents on account of their nationality, and I am of the opinion that the carrying out of certain measures by the local board of health has been erroneously attributed to this Bureau or its representative at San Francisco. That there might be no room for misunderstanding, I wired Surgeon Kinyoun at San Francisco that the Bureau would not enforce, or assist in enforcing, regulations which make race discrimination, and have received a reply, under date of June 2, to the effect that no racial discrimination is being made, so far as known to him, and that any assertion that Japanese are still being inoculated or prevented from leaving noninfected area is incorrect.

Respectfully,
Walter Wyman,
Surgeon-General Marine-Hospital Service.

The Secretary of the Treasury.

The following letter from Surgeon Kinyoun is of interest in connection with the proceedings before related in that city, and sets forth plainly the position taken by the Bureau and by Surgeon Kinyoun, to the effect that the Haffkine inoculations complained of should not be made compulsory, but simply be advised:

Office of Medical Officer in Command,
Marine-Hospital Service, San Francisco Quarantine,
San Francisco, Cal., June 11, 1900.

Sir: On receipt of Bureau telegram of the 15th ultimo directing me to confer with the Chinese consul-general as Bureau representative in the matter of the plague in the Chinese quarter, I have the honor to state I immediately called upon the Hon.

Ho Yow, consul-general, and stated to him all the facts relative to the plague which had come under my observation or which had been brought to my notice by the local board of health. During this interview Mr. John Bennett, attorney for the consul and the Six Companies, came in and took part in the discussion. After thoroughly canvassing the matter it was agreed by all the parties that the most reasonable solution of the question was to advise all the Chinese residents living in the infected area to submit to inoculation with the Haffkine prophylactic I was informed both by the consul-general and the attorney that they would make such recommendations to the Chinese residents and that they would aid and cooperate with the board of health in carrying this scheme into effect. By direction of the Bureau, on the same day, a few hours later, I attended a meeting of the Merchants' Association, which met for a conference with the local board of health. The purpose of this meeting was intended to devise ways and means to assist the board in suppressing the disease or preventing its spread. The attorney of the Chinese Six Companies was present at this conference. The telegram received from the Bureau which made certain recommendations regarding the control of the plague was fully and freely discussed, and the main features thereof were adopted as the sense of the meeting. The impression which seemed to prevail at the close of the meeting was that the Chinese and Japanese would gladly avail themselves of inoculation in order to obviate the necessity of enforcing more severe measures. I ventured, however. to suggest to both the board of health and the Merchants' Association that, while I believed from a scientific standpoint it was the proper way to suppress a plague epidemic, I had grave doubts whether the Chinese and Japanese populace would be ready to accept it, notwithstanding it was to be recommended by those in authority. Compulsory inoculation was the only recourse, and that could not be considered. The attorney for the Chinese thought if a conference could be had between the representative men of the Six Companies, consul-general, the Merchants' Association, and the board of health that it would be an easy matter to arrange and have it carried into effect. This conference was held on the following day, at which was present the consul-general and about 50 or 60 of the representative men of the Chinese Six Companies. The Chinese all agreed that they would recommend by proclamation or otherwise to their several tongs the acceptance of the method of inoculation. Surgeon Gassaway was present at this meeting. I was not able to be present on account of my absence in Stockton. At the close of the meeting it was understood by the board as well as others that there would be no opposition by the Chinese to accepting vaccination. As soon as the result of this conference was made known a number of whites, among whom were several physicians who practiced in the Chinese quarter, went among the Chinese and informed them that this method was exceedingly dangerous and had killed a number of people where it had been tried, and it was experimental to say the least. Officers of the Chinese Six Companies were approached and the statements made by these parties seemed to have the desired effect. Immediately thereafter large numbers of Chinese residents came to the offices of the Six Companies for the purpose of ascertaining the purport of this inoculation and why it was to be put into effect. They were informed that the board of health had said plague was present in Chinatown, and this was the best means of eradicating the disease. Demands were made immediately upon the officers of the Six Companies that if it was not dangerous as claimed that they should first submit themselves to inoculation. This they refused to do, and immediately thereafter there occurred almost a riot, in fact the officers of the Six Companies were besieged in their houses, some of whom I am informed had to seek safety in flight. The same course of procedure was followed with Mr. Ho Yow. About 700 Chinese gathered before the consulate making a riotous demonstration, and had it not been for adequate police protection some harm might have resulted other than smashing a window glass. At 8 o'clock the same day a circular written in Chinese characters was freely circulated in the Chinese quarter. The purport of this circular was that all Chinese were requested to resist to the utmost the inoculation and under no circumstances to allow it to be performed. A copy of this circular is herewith inclosed. On Sunday afternoon, May 20, I was requested to come to the consulate to confer with the Chinese consul. Accordingly I arrived there in the afternoon and met Mr. Ho Yow and a number of the representative Chinese, among whom were several officers of the Six Companies. I was informed that unforeseen difficulties had arisen by reason of the circular threatening Chinese business men and others if they submitted to the inoculation, and that they found it impossible to persuade the Chinese to accept the inoculation. I was asked the authority for this action. I informed them that it was a suggestion made by the Supervising Surgeon-General, and it was in no wise to be considered as obligatory and only a voluntary act on the part of the Chinese who wished to accept it. I further informed these gentlemen that there was no desire whatever on the part of the Government or on the part of the local board of health to inflict unnecessary hardship upon their people, and the motives that actuated them to make this restriction on the Chinese as a class were the best and could not be questioned. I then informed them that if this disease was not brought immediately into abeyance it would probably lead to harsher measures being instituted not only by the board of health but by all other health bodies in the State and perhaps surrounding States. It was my earnest desire as the representative of the Marine-Hospital Service to prevent this if it was in any way possible. It was observed that the consul and his subordinates were much excited, and on making inquiry from same I found that a large number of Chinese had gathered in front of the consulate and commenced to throw stones at the building. At the request of the clerks I called for the police, who immediately came and dispersed about 1,000 Chinese who had assembled in front of the building.

I was informed by the board of health that preparations were immediately put into effect by which the inoculations would be given coincident with the house to house inspection, which was then deemed necessary. On the morning of the 19th a corps of physicians with assistants began a tour of inspection in the Chinese quarter offering the inoculation. Every business house and residence was closed. The inspection existed only in name. I was informed that only one Chinese was inoculated during the day. This was the editor of the Chinese daily newspaper who thought that he could overcome the prejudice of his race by openly submitting to the inoculation. Immediately on its completion he was attacked by a mob threatening dire vengeance, and he had to seek his quarters, where he remained for three days. I was informed that the Chinese highbinder element was responsible for the Chinese attitude toward the inoculation and that they had threatened dire vengeance upon anyone who would advocate inoculation or submit to it. It was evident that the Chinese race was acting as a unit and would not, under any circumstances, submit to inoculation. This was evidenced from what transpired at the ferries here. Chinese were brought immediately from the vessels and informed that in order to go in and out of Chinatown or leave San Francisco it would be necessary for them to submit to inoculation, and quite a number submitted to the inoculation, but always before they had been in communication with the Chinese quarter. During all this time a coterie of white physicians and others were circulating all kinds of rumors among the Chinese as to the direful effects of the inoculation. I was informed by the secretary of the Six Companies that a rumor was circulated to the effect that 5 Chinese had died suddenly from the inoculation. I took occasion to run this rumor down and found that it was absolutely without foundation. Two Chinese had become, however, quite sick on the day following, but two days after were seen about the streets. Another circular, issued by whom I do not know, was to the effect that the health inspectors were dangerous people and were liable to poison them, not only by the injection, but also food and water. A copy of this circular I also inclose. * * *

After a week's delay in attempting to give the inoculations it was abandoned as a failure. During this time 58 Chinese, 530 Japanese, and 234 Caucasians were inoculated. A considerable portion of the time was consumed in promises of the Chinese attorneys and others in authority, who claimed if a little more time be given to the Chinese it would bring about the desired result in allowing a house to house inspection to be made. The board of health rested during this time, and was not a little surprised to be notified to appear in court to show cause why it and the Federal quarantine officer should not be enjoined from further inoculating or preventing the Chinese from leaving the district. It was then evident to all that the attorneys were playing for time in which to formulate their complaint and file the papers in the United States court, and it was not the intention to further aid the board of health in carrying out what it deemed necessary for the prevention or suppression of plague among the Chinese residents of San Francisco. These people have been deluded time after time by erroneous statements made in the press of San Francisco. In fact, I am warranted in stating that the truth about the plague situation has never been published. * * * An unfortunate feature of the suit brought was the fact that in some way the pamphlet on plague issued by the Supervising Surgeon-General fell into the hands of the attorneys of the Chinese. That part which speaks of the Haffkine prophylactic, and particularly the statement made therein that it should not be given to anyone who had been directly exposed to the plague, was used to the greatest advantage possible. Even the judge in rendering his decision laid special stress upon this point to show that this method would be highly dangerous for people who had been exposed to plague, and therefore could not be safely taken. I do not know whether Judge Morrow was aware of the fact that when he stated that in administering the Haffkine prophylactic under these conditions it was a tacit admission that plague did exist in the Chinese quarter, or otherwise there would have been no danger in its administration. The administration of the Haffkine prophylactic has been on the whole a failure. Whether it accomplished any good or not is a question, that is, so far as the Chinese are concerned. It certainly has immunized about 500 Japanese, whose condition and mode of life is not far removed from those of the Chinese. In this way it has eliminated this number of being reagents in the dissemination of plague. I have stood in readiness to furnish the local and county boards of health limited quantities of the haffkine prophylactic on demand. I have in this manner distributed several hundred doses to health officers in the surrounding towns.

Respectfully,

J. J. KINYOUN,
Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

CORRESPONDENCE—Continued.

The following telegrams show situation and measures taken up to July 16. The papers in second injunction suit, habeas corpus writ, and citation for contempt appear at the end of this telegraphic correspondence:

SAN FRANCISCO, CAL., *May 31, 1900.*

City board of health, by resolution, request cooperation of Service. Has requested Perkins to obtain permission for detention camp 7,000 persons on Angel Island and Mission Rock. If Angel Island granted, suggest control. State board of health will request Service continue train and vessel inspection leaving San Francisco. Cordon yet weak; can be evaded. Am keeping observation on all Asiatics leaving city.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *May 31, 1900.*

Another very suspicious case discovered yesterday. Body dead twenty-four hours. Diagnosed tuberculosis. Characteristic organisms found. Animal inoculations made. Herald report correct.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *June 1, 1900.*

Recently repaired portable steam chamber ordered sent you.

WYMAN.

KINYOUN, *Angel Island, Cal.*

WASHINGTON, D. C., *June 1, 1900.*

Until new and complete regulations can be promulgated under law of 1890 the law of 1893 and interstate quarantine regulations thereunder should be made use of by you. Section 3, lines 4 to 11, authorizes cooperation in execution of both State and municipal regulations. If State and municipal regulations are insufficient, suggest State and local boards of health make such as are requisite. Any additional ones which they can not or will not make wire Bureau for incorporation in regulations under 1890. What freight regulations do you deem advisable?

WYMAN.

KINYOUN, *San Francisco, Cal.*

WASHINGTON, D. C., *June 2, 1900.*

Your telegram May 29 states local board health has placed absolute cordon around Chinatown. This being the case, wish to know if any discrimation is being made with regard to parties leaving Chinatown, and whether any racial discrimination is being made regarding people leaving San Francisco. It is asserted here that Japanese are still being inoculated or detained if refuse inoculation. Bureau can not enforce or assist in enforcing regulations which make race discrimination. Wire facts.

WYMAN.

KINYOUN, *San Francisco, Cal.*

WASHINGTON, D. C., *June 3, 1900.*

The loan of small disinfecting chamber and installation of it at request of local board of health, June 1, approved. Wire cost of installing sulphur furnace on barge. In view of present situation, do you still think this necessary? Do not wish to do it unless absolutely necessary or until absolutely necessary. Chamber of commerce at Eureka has wired complaining of fumigation of all vessels from San Francisco that no such orders at other ports on coast; "no Chinese in county and no Chinese goods received; only communication by water," and asks order rescinded or modified. In view of present situation suggest its modification for the present.

WYMAN.

KINYOUN, *San Francisco, Cal.*

SAN FRANCISCO, CAL., *June 3, 1900.*

State board met yesterday. Decided to lay whole matter before governor. They feel that since they compelled San Francisco to cordon infected area it would be viewed in light of suspicion by local board if train inspection continued. Informed them that during past four days Chinese and Japanese have gone to several portions of State, many of whom came and are coming from infected districts. Local board admits inefficiency of cordon by reason of lack of funds. Will perhaps be able to meet conditions in a short time. Believe those leaving city coming from or suspected coming from infected area should be kept under observation. Impossible to do this if train inspection abandoned. Will, however, redouble efforts at border if they decide train inspection not necessary or desired. At present State board has no regulations covering inspection trains or vessels. Have suggested they frame such immediately. Board has meeting to-morrow, when matter will be decided. * * *

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 3, 1900.*

Case suspicious plague reported May 29 confirmed by bacteriological examination. Two other suspicious June 2.

KINYOUN

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 4, 1900.*

The State board has approached governor, who at present declines aid or cooperation. General meeting State board called for Wednesday. Cofer leaves to-day. Awaits order depending on board's action. Direct me if I shall continue train inspection service or suspend. State board has no regulations under which I can act, nor has local board of health jurisdiction outside city. * * *

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 4, 1900.*

Have learned from local board Secretary of War consents use Angel Island for detention camp. China Cove recommended. Will require at least one week erect landing pier, gangway, fences, water supply, cost about $7,500. Suggest this amount be immediately available and Service control camp. Seven thousand Chinese must be moved before Chinatown can be cleansed. Citizens' committee has over $40,000 subscribed for quarantining these people. Am trying to arrange obtain use Mission Rock warehouse for detention camp. This will house 1,500. Request instructions.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *June 4, 1900.*

Wire full information concerning house-to-house inspection of Chinatown. When begun, how large a force, is it still under way, has it been thorough? Under present conditions and because camps on Angel Island are for the purpose of municipal house cleaning, believe their management and expense should devolve on city. Do not suspend train inspection, but avoid race discrimination.

WYMAN.

KINYOUN, *San Francisco, Cal.*

SAN FRANCISCO, CAL., *June 5, 1900.*

House-to-house inspection exists only in name, as only 10 inspectors engaged to make house-to-house inspections. All admit an impossible task owing to existing conditions in Chinese quarter. Inspectors have not found a sick person, nor can they discover the dead; these are found in undertakers' shops, discovered by other persons. So far practically nothing has been done save cordon of district. Have insisted on adequate force and institution proper measures population of indigent and others wishing to go to detention camps. Have been asked to assume direction and charge of detention camp on Mission Rock, expense to be borne by city. Large number Chinese desire to leave city for other portions of State. Believe these should be under care of Service in detention camp, Angel Island. Will continue train inspection service, also bay patrol at night, avoiding any race discrimination. Suggest all facts relative to conditions as telegraphed you, or by reports, be laid before Department State. Rumor this morning injunction will be sought by Chinese to remove quarantine.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 5, 1900.*

Two suspected cases plague previously reported, one confirmed by bacteriological examination, the other tuberculosis. This case plague most typical infection I have ever seen.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 5, 1900.*

In event assuming charge detention camp Mission Rock will need an active experienced steward additional.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *June 5, 1900.*

Have request from steamship company to place inspector on San Francisco and San Diego Line to take steamer at San Diego and take south-bound steamer at Port Harford to avoid delay as railway inspector. You are authorized to nominate and place this inspector.

WYMAN.

KINYOUN, *San Francisco, Cal.*

SAN FRANCISCO, CAL., *June 6, 1900.*

Injunction suit by Chinese attorneys filed Federal court yesterday. Hearing to-morrow. Matters at standstill. If something is not done immediately toward relieving conditions, task of controlling disease will be greatly increased. In past week 1,000 Chinese and Japanese have gone to various portions State; all with few exceptions residents. Have notified State board health authority to use Cofer, make inspections surrounding districts. Believe necessary have appointed inspector on vessels from here to San Diego. Also wired Cofer nominate good man for Bakersfield; probably will place one at Sacramento also; can not regulations under law ninety be immediately telegraphed me, because if restraining order granted against local board general exodus of infected persons will result? Wish to be prepared against any possible emergency.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 7, 1900.*

Judge Morrow enjoins board from removing Chinese to detention camp; has postponed hearing arguments lifting quarantine next Wednesday. Governor conferred with State board of health at meeting last night. He has used every means to discredit policy of city board of health, even going so far as to deny existence of plague in San Francisco. Merchants' relief suspended. All matters at a standstill. State board of health does not request Service to aid in train inspection, but will continue notwithstanding. Situation unchanged.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

On June 9 a telegram was received from Dr. Kinyoun, stating that on the morning of the institution of the first injunction suit he was approached and offered a large reward if he would use his influence to have the regulations regarding Chinese rescinded. Dr. Kinyoun also stated in this message that he had credible information that large rewards were being offered physicians to prove nonexistence of plague in order to lift quarantine, and that threats had been made to kill any

Chinese going to detention camp, because by so doing they would admit existence of plague. Also stated that political capital was being made out of the situation, and that Merchants' Association would not furnish board of health with any funds except to feed indigent persons.

SAN FRANCISCO, CAL., *June 12, 1900.*

City board of health passed resolution raising quarantine twenty days after last ascertained case. Situation unchanged. Sewers now being fumigated. Garbage crematory erected in Chinatown. Case injunction before Federal judge to-morrow.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 13, 1900.*

Two bodies Chinese found June 11. One diagnosed heart disease; other bronchitis. Bronchitis case presented few typical organisms suggesting plague. Animal inoculations made. To-day animal bronchitis dead; examination under way. Another case reported yesterday considered plague pneumonia. Now being investigated. This last case occurred just outside quarantined area. Federal court releases quarantined Chinaman, habeas corpus proceedings. Believe all can be discharged from infected area under these proceedings unless actually suffering from plague. Case restraining city board of health from quarantining now being argued Federal court. Anticipate decision will be to raise quarantine. In this event request immediate instructions.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 14, 1900.*

If Federal court orders abandonment cordon Chinese quarters, thereby permitting persons from infected district to depart from city will, unless directed otherwise, enforce regulations of May 21 against all persons leaving San Francisco for other States. Will instruct common carriers refuse transportation all persons desiring to leave San Francisco to other States unless on certificate marine-hospital officer. Will reenforce guards State lines; also notify State boards surrounding States actual conditions existing here. Believe this only course now left open since executive of California has seen fit to make misleading statement to State Department concerning conditions here.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *June 14, 1900.*

Wire on what ground the habeas corpus was granted in the case of the quarantined Chinaman. Also, has the correspondence in public health reports of June 1, showing plague in San Francisco and approval of President for making regulations, been submitted in evidence? Wire whether this is not considered by the court sufficient evidence of the satisfaction of the President that the plague exists as contemplated in the law of 1890. If court raises quarantine immediately wire grounds given for this action.

WYMAN.

Surgeon KINYOUN, *San Francisco, Cal.*

SAN FRANCISCO, CAL., *June 15, 1900.*

Claims in habeas corpus case that Chinese had been caught in quarantine lines. Only been Chinese quarter one hour; had not had plague, nor was suffering from plague. Judge De Haven granted discharge. Would not entertain facts set forth by affidavits nor in public health reports. The quarantine officer claimed probable exposure; could not substantiate. Decision practically means no one held in quarantine unless suffering from plague or been directly in contact with case.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 15, 1900.*

Federal court orders raising quarantine infected area, claiming under Constitution racial discrimination made. Has not touched upon presence or absence of plague. Although reported, states personal belief nonexistent. Have put in operation regulations as stated yesterday.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 16, 1900.*

Have been informed to-day Judge Morrow orders lifted quarantine Chinese quarter on grounds racial discrimination, severe and oppressive measures not accomplishing object of suppressing disease, but increasing danger if disease exists. Large numbers from infected district now going several parts of State. Only few so far attempting travel to other States. Southern Pacific issues orders on advice counsel refuse tickets Asiatics, notwithstanding Federal court decision. Is now issuing tickets to whites provided they assume responsibility quarantine State border. Have protested against this, demanding parties obtain certificate first. About six hundred certificates issued to-day, parties leaving State. Very little delay. Shall I request United States district attorney to represent me before Federal court or will Bureau have necessary instructions issued? Suggest latter. Believe from attitude of the United States district attorney it will be necessary to carry case higher.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 16, 1900.*

Have just received telephone from United States district attorney asking relative orders issued to common carriers to refuse transportation persons leaving San Francisco. Read him my telegrams 13th and 14th relative thereto. Governor now in consultation with him. District attorney requested me permit him tell governor contents telegrams. Refused. District attorney states belief my orders issued in contempt of court. Advised me revoke. Refused to do so unless ordered by Secretary of Treasury or Surgeon-General. District attorney claims court holds order of President is general; does not apply specifically to San Francisco. I claim public health reports specify San Francisco, therefore regulations 1890 apply, and so considered by the President when orders issued for regulations under law 1890. Wire instructions. Rush answer.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *June 16, 1900.*

Wire details as to inspection certificates required of persons leaving San Francisco for other States and how enforced by border inspectors.

WYMAN.

Surgeon KINYOUN, *San Francisco.*

SAN FRANCISCO, CAL., *June 16, 1900.*

Inspection certificates now being issued to persons desiring to leave the State are to the effect that holder has complied with quarantine laws and regulations and free from infection of plague or danger of carrying same. Certificate issued only after satisfactory evidence furnished by party desiring to travel that there is no danger of carrying plague infection.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

SAN FRANCISCO, CAL., *June 16, 1900.*

May be necessary to establish detention camps on State borders. Request authority to obtain tents War Department and purchase other articles equipment camps provided necessary. Rush answer.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *June 16, 1900.*

Wire number of camps proposed, number of tents, and employees for each, and estimated cost of establishing each camp, and estimated cost of running it. If emergency should demand small camp, authorize at once pending reply to this.

WYMAN.

Surgeon KINYOUN, *San Francisco.*

WASHINGTON, *June 16, 1900.*

Will you not kindly admit Asst. Surg. Robert L. Wilson, who has taken proper precautions in coming from San Francisco and is now detained at Deming, N. Mex., prevented entry by your inspectors?

WYMAN.

State Health Officer BLOUNT, *Austin, Tex.*

WASHINGTON, *June 16, 1900.*

Have wired Texas State health officer requesting your admission.

WYMAN.

Asst. Surg. ROBERT L. WILSON,
Deming, N. Mex.

SAN FRANCISCO, CAL., *June 16, 1900.*

Have just had served on me order of court citing me to appear Monday show cause why not punished for contempt on account of restraining order issued 28th May. Complaint charged I have prevented Wong Wai leaving San Francisco to travel Eureka. My orders to transportation companies distinctly state from one State to another, and do not touch upon passage within State, except in so far as coming in contact with Federal quarantine where certificates have been issued to those entitled to them to facilitate vessels discharge and landing passengers.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *June 17, 1900.*

Consult United States district attorney. Be guided by his advice in all quarantine procedures. Request him also to appear for you before the court Monday.

By direction Secretary Treasury.

WYMAN.

Surgeon KINYOUN, *San Francisco.*

SAN FRANCISCO, CAL., *June 17, 1900.*

Wire me full text any additional interstate quarantine regulations now in force bearing directly on supervision persons from infected areas or exposed to a quarantinable disease. Only copy on file dated September 27, 1894; require this to-morrow morning court. Also does Bureau hold regulations May 22 apply specially to San Francisco and are not at present general, and was not their intention and purpose to suppress plague in San Francisco or prevent its spread?

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, D. C., *June 17, 1900.*

No additional interstate regulations promulgated but regulations May 22 were intended to apply at San Francisco, and were promulgated immediately after my letter to Secretary Treasury May 21, setting forth facts at San Francisco, and indorsed by Secretary and President.

WYMAN.

Surgeon KINYOUN, *San Francisco, Cal.*

WASHINGTON, *June 18, 1900.*

Withdraw all inspections until further orders.

WYMAN.

Surgeon KINYOUN, *San Francisco.*

WASHINGTON, *June 18, 1900.*

Discharge all except border inspectors. Direct them to await orders for present.

WYMAN.

Surgeon KINYOUN, *San Francisco.*

WASHINGTON, *June 18, 1900.*

Replying to your telegram to the President, June 16, am informed by the Surgeon-General Marine-Hospital Service in view of all the circumstances orders have already been issued withdrawing quarantine inspections. So far as known to the Department Surgeon Kinyoun has endeavored only to carry out the Department regulations.

O. L. SPAULDING,
Acting Secretary.

The GOVERNOR OF CALIFORNIA, *San Francisco, Cal.*

WASHINGTON, *June 18, 1900.*

Secretary Treasury has sent following to Attorney-General: "Please instruct the United States district attorney by wire at once to appear and defend Surgeon Kinyoun, who has been cited before court this morning for contempt. Department is convinced no intention on the part of Surgeon Kinyoun to disobey injunction. Signed, Acting Secretary."

WYMAN.

Surgeon KINYOUN, *San Francisco.*

San Francisco, Cal., *June 18, 1900.*

Confidential. Bacteriologist city board of health reports another case probably plague San Francisco. Will have few days interesting report Fresno.

Kinyoun.

Surgeon-General Wyman, *Washington.*

San Francisco, Cal., *June 18, 1900.*

United States district attorney, according to orders, appeared for me this morning before Judge Morrow in contempt proceedings. United States district attorney stated court no intentional desire on part myself violating orders of court. Since inspections withdrawn and myself promising no action taken unless in conference with United States district attorney, would request contempt proceedings held abeyance. Morrow asserts contempt proceedings must be answered. No power in this country to set aside or construe orders of court save court itself. No regulation now existing or pending must be executed or enforced unless by direct order of court. Court standing in readiness at any time to modify orders if emergency demands. Case postponed for one week returnable at any time. Answer filed with United States district attorney denying facts as stated in citation contempt proceedings. Under ruling court no interstate regulations can be enforced unless first passed upon by Federal court. Am given to understand that even President himself can not promulgate regulations touching California or surrounding States.

Kinyoun.

Surgeon-General Wyman, *Washington.*

Washington, D. C., *June 19, 1900.*

Under ruling of Federal court you can not at present interfere in any way with Chinese or other persons arriving at Eureka from California points.

Wyman.

Harris, *Marine-Hospital Service, Eureka, Cal.*

Washington, *June 19, 1900.*

Confidential. Forward copies of the proceedings of the court in the habeas corpus case and in the case enjoining local board health from quarantining infected area. Also copies of all the proceedings relating to your citation for contempt. Wire if you can what are the specific findings or orders of the court which your acts are said to be possibly in contempt of. The ground for your citation is not clear to Bureau unless inspection service is by inference in violation of the findings of the court. Also proceedings in case where court forbid removal of Chinese to detention camp.

Wyman.

Surgeon Kinyoun, *San Francisco.*

San Francisco, Cal., *June 21, 1900.*

Confidential. In conference to-day with United States district attorney relative to orders of court United States district attorney states court holds no regulations under law ninety or ninety-three can be enforced unless by direct order or permission of court. Have made verbal request interpretation maritime quarantine regulations. United States district attorney declines to press matter. If this proper interpretation all matters here standstill. Would respectfully request associate counsel assist United States district attorney look after Service interest.

Kinyoun.

Surgeon-General Wyman, *Washington.*

Washington, *June 22, 1900.*

Telegram of 21st received. Do you mean court may hold that the administration of quarantine on Angel Island against vessels from foreign ports can not be enforced except by direct order or permission of the court? In any event it is deemed advisable to await action of court and to be guided absolutely by advice of district attorney. Answer.

Wyman.

Surgeon Kinyoun, *San Francisco.*

San Francisco, Cal., *June 22, 1900.*

Submitted your telegram to district attorney; sees court, and states injunction does not interfere with ordinary administration quarantine Angel Island and no order court necessary case of vessels from foreign ports.

Kinyoun.

Surgeon-General Wyman, *Washington.*

San Francisco, Cal., *June 22, 1900.*

Still believe district attorney wholly inimical to interests of Surgeon-General Marine-Hospital Service and Surgeon Kinyoun because refusal to have all my actions fully investigated by court in contempt proceedings. Must renew request yesterday additional counsel, and most respectfully insist direct orders.

Kinyoun.

Surgeon-General Wyman, *Washington.*

Washington, *June 23, 1900.*

Referring to your telegram 22d, closing paragraph, namely, insist on direct orders, not understood. Yesterday's Bureau telegram, to be guided by district attorney, was sent after consultation with Secretary.

Wyman.

Surgeon Kinyoun, *San Francisco.*

Washington, *June 23, 1900.*

Dispense with services of Cross and Dwight. Also discontinue services inspectors on border.

Wyman.

Surgeon Kinyoun, *San Francisco.*

San Francisco, Cal., *June 23, 1900.*

My telegram 22d was reaffirming statements already made concerning attitude district attorney in case of citation for contempt. District attorney states to me that he will rest the case upon my simple denial without corroborative evidence, notwithstanding district attorney holds that all regulations made under law 1890 are under ban of court. Court has stated that all my actions will be reviewed on this hearing, therefore inspections instituted on State border must be considered. As all my acts in the premises were official acts based on orders and instructions from my superiors, and are in no sense individual acts, full and fair presentation of the facts is demanded. If this is not done, I am convinced the decision of court will be adverse. I therefore most respectfully demand full and adequate protection be accorded me by my Department, and would suggest that such presentations be made to Department of Justice to cause a full presentation of facts upon hearing. If this is done, I have no fear of the result. Being now placed in a position wherein I am deprived from protection of counsel I am forced to make this request.

Kinyoun.

Surgeon-General Wyman, *Washington.*

Washington, *June 24, 1900.*

Your telegrams of the 22d and 23d both laid before the Acting Secretary and Solicitor of the Treasury. Matter thoroughly discussed. They think it injudicious to send further instructions to United States district attorney or employ additional counsel.

Wyman.

Surgeon Kinyoun, *San Francisco Quarantine.*

San Francisco, Cal., *June 25, 1900.*

Court orders telegrams and records of office to be inspected by opposing counsel, and submit all papers deemed pertinent for court's consideration. Case continued to-morrow.

Kinyoun.

Surgeon-General Wyman, *Washington.*

San Francisco, Cal., *June 25, 1900.*

Case called this morning. Judge Morrow admits all evidence for consideration and review bearing on my official acts here, not confining inquiry to specific charge. Have insisted district attorney lay before court full facts. Trial progressing.

Kinyoun.

Surgeon-General Wyman, *Washington.*

San Francisco, Cal., *June 25, 1900.*

Respectfully request that the Department be requested immediately to instruct district attorney if it becomes necessary to institute action in habeas corpus proceedings.

Kinyoun.

Surgeon-General Wyman, *Washington.*

WASHINGTON, *June 25, 1900.*

Your to-day's telegram regarding action habeas corpus was referred by Acting Secretary Treasury to Attorney-General.

WYMAN.

Surgeon KINYOUN, *San Francisco.*

SAN FRANCISCO, CAL., *June 26, 1900.*

Cofer's presence here urgently needed as witness in case to refute alleged statements. Please order him to be on hand when requested.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

WASHINGTON, *June 26, 1900.*

Proceed to San Francisco when wired by Kinyoun to do so.

WYMAN.

COFER, *Los Angeles, Cal.*

WASHINGTON, *June 26, 1900.*

Cofer ordered to proceed to San Francisco when requested by you. Wire him when you want him.

WYMAN.

KINYOUN, *San Francisco.*

SAN FRANCISCO, CAL., *June 26, 1900.*

Case adjourned until Monday next awaiting arrival important witness for prosecution. United States district attorney states he thinks has case won, but will not predict decision of court. Cofer's testimony all important. Attorneys have abandoned portion proceedings.

KINYOUN.

On June 27, 1900, the State health officer of Texas was informed of the situation in the following telegram:

WASHINGTON, D. C., *June 27, 1900.*

There have been reported 10 cases confirmed by bacterial examination from March 7 to June 2, and 4 or 5 under investigation since then; 1 reported as suspicious June 14 was reported confirmed by bacterial examination June 22. Since last date none reported.

WYMAN.

State Health Officer W. F. BLOUNT, *Austin, Tex.*

SAN FRANCISCO, CAL., *June 27, 1900.*
(Received Washington June 28—9.19 a. m.)

No further developments except suspected case one week ago. Examination not yet completed. Believe on account of length of time between death and discovery will yield negative results. Would respectfully suggest following arrangement be made pending developments: Earle and Wilson to go marine hospital. Lloyd assigned station. Kerr kept for special work. Shall I close city office end of month? Inquiries from local boards relative obtaining Yersin serum. Have cultures from Paris arrived? Can confirmatory reports relative cultures sent you 15th be obtained before Monday next? Important. Wire instructions.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

JUNE 28, 1900.

Cultures and histories cases received and examination in progress. Morphology and cultural appearances and death of mice inoculated suggest entire probability correctness diagnosis, but in view importance subject, Bureau withholds final decision awaiting results inoculations other animals, especially rats controlled by Yersin serum. Decision will be wired you as soon as reached, by Monday next if possible.

WYMAN.

Surgeon KINYOUN, *Angel Island.*

JUNE 28, 1900.

Forty tubes virus Danysz and literature expressed you to-day.

WYMAN.

Surgeon KINYOUN, *Angel Island.*

WASHINGTON, *June 28, 1900.*

Regarding Yersin serum can not supply local boards of health, but would not object to your using discretion in the matter of sending on occasion. Have 900 bottles at Bureau and shall receive additional quantity. Close office end of month.

WYMAN.

Surgeon KINYOUN, *San Francisco.*

WASHINGTON, *June 30, 1900.*

Notwithstanding position taken by governor, inasmuch as it is stated that he with State board of health is engaged in watching and investigating suspected cases, your attitude toward him and State board should still be one of cooperation in measures looking to facts and sanitary restraints. Any facts wired by you as confidential will not be given out here until the confidential request is withdrawn. Publicity may not be required provided proper measures are taken.

WYMAN.

Surgeon KINYOUN, *San Francisco.*

JUNE 30, 1900.

Cultures submitted by you, labeled case 1, monkey, and Chinese girl 2, have been examined in hygienic laboratory this Bureau, and Rosenau and Geddings report to-day that morphology, cultural characteristics and results of animal inoculations prove them genuine bubonic plague.

WYMAN.

Surgeon KINYOUN, *Angel Island.*

SAN FRANCISCO, CAL., *July 2, 1900.*
(Received July 2, after 10 p. m.)

Case came up for final hearing to-day. Court has persistently overruled objections of United States district attorney and refused to consider documentary evidence submitted by me. United States district attorney's attitude not favorable, nor has he appeared at any time to take very much interest in matter. Anticipate from attitude of court and district attorney unavoidable decision. Would request steps be taken to carry case higher. District attorney says has no instructions from Washington. Case probably decided to-morrow.

KINYOUN.

Surgeon-General WYMAN, *Washington.*

[Indorsement on above telegram.]

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, July 3, 1900.

Respectfully referred to the honorable Attorney-General, with request that if in his opinion it is proper instructions be immediately wired the district attorney as indicated in the within copy of telegram.

H. A. TAYLOR,
Acting Secretary.

DEPARTMENT OF JUSTICE,
Washington, July 3, 1900.

Report at once action of court in contempt proceedings against Dr. Kinyoun, and if adverse to him, take immediate steps to have decision reviewed. Prompt and vigorous action on your part, by habeas corpus proceeding or otherwise, as in your judgment is best, is expected.

JAMES K. RICHARDS,
Acting Attorney-General.

WASHINGTON, *July 3, 1902.*

Acting Attorney-General sent following to district attorney this morning: "Report at once action of court in contempt proceedings against Dr. Kinyoun, and if adverse to him take immediate steps to have decision reviewed. Prompt and vigorous action on your part by habeas-corpus proceeding or otherwise, as in your judgment is best, is expected."

WYMAN.

Surgeon KINYOUN, *San Francisco, Cal.*

San Francisco, Cal., *July 3, 1902.*

Court decides me not in contempt of its orders. * * *

Kinyoun.

Surgeon-General Wyman, *Washington.*

Angel Island, Cal., *July 7, 1900.*

Fatal suspected plague admitted to city hospital July 4. Sent by Pillsbury, acting for Chinese Six Companies and executive California, under diagnosis possibly typhoid fever. Clinical history: high temperature, delirium, and painful buboes. Ill one week and dead July 5. Came from Clay street on the same block, but on other premises, same as fatal June 2. Present at autopsy with representatives of State board, local board of health, quarantine at Victoria, British Columbia, Cooper College, and the University of California. Representative executive of California not present until after completion of autopsy, notwithstanding repeated notifications sent and autopsy delayed. Examination shows large femoral bubo surrounded by œdema, hemorrhages in glands, axillary glands enlarged, enlarged spleen. No lesions of typhoid fever. Direct microscopical examination of glands and spleen shows numerous short bacilli, bipolar staining corresponding morphologically to bacillus plague. Cultures and animal inoculations made by me, the State board, the local board of health, and the representative of the Victoria quarantine. So far this case fulfills all the postulates demanded by executive of California.

Kinyoun.

Surgeon-General Wyman, *Washington.*

Washington, *July 16, 1900.*

Last case plague reported San Francisco July 4. No cases positive or suspicious since then.

Wyman.

Dr. Edmond Souchon,
President Louisiana State Board Health, New Orleans, La.

From that time on to the date of this report there have been five additional cases, occurring singly and at long intervals. The Service has had and still has its officers in San Francisco watching the situation and to inaugurate or assist in measures which may be necessary and practicable.

Legal Decisions on Quarantine of Chinatown.

From May 28 to July 3 two injunction suits, one habeas corpus writ, and one citation for contempt had to be contended with by those having direct charge of the quarantine measures in San Francisco.

As showing the legal status of quarantines of this character, the papers in these cases are both interesting and instructive, and are therefore included as part of this report. The first injunction suit will be found hereinbefore published under date of May 28. The papers in the other three cases follow:

SECOND INJUNCTION—JEW HO V. WILLIAMSON ET AL.

On June 5 a bill of complaint was filed by one Jew Ho, setting forth that he was unlawfully held prisoner in Chinatown; that his own physician was not allowed to visit him, and praying for an order to restrain the defendants from thus interfering with his personal liberty, and further asking damages in the sum of $5,000.

Upon the same day, June 5, Judge Morrow ordered the defendants, Williamson et al., to appear June 7 and show cause why an injunction should not be issued against them in accordance with the above-mentioned bill of complaint, and in the meantime, until June 7, the date set for said hearing, the said defendants to be enjoined from interfering with complainant in any manner set forth in said bill of complaint.

Following is the order:

In the United States circuit court, ninth circuit, northern district of California.

JEW HO, COMPLAINANT, v. JOHN M. WILLIAMSON, RUDOLPH W. BAUM, LOUIS BAZET, WILLIAM D. MCCARTHY, VINCENT BUCKLEY, GEORGE W. MENDELL, AND WILLIAM P. SULLIVAN, JR., DEFENDANTS.

On reading the duly verified bill of complaint herein and the affidavits of Wong Wai, Jung Gee, and Wong Chung, and good cause appearing therefor—

It is ordered that the defendants, John M. Williamson, Rudolph W. Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, and William P. Sullivan, jr., show cause before the court at the court room thereof in the United States appraisers' building, at the northeast corner of Sansome and Washington streets, in the city and county of San Francisco, State of California, at 11 o'clock a. m., on the 7th day of June, A. D. 1900, or as soon thereafter as said defendants or their counsel can be heard, why an injunction should not be issued restraining and enjoining defendants, and each and all of them, and their and each of their agents, servants, inspectors, employees, and other subordinates, and all persons acting in their behalf, from in any manner restraining, confining, or imprisoning complainant or any of said other Chinese residents of said quarantined district within the limit of said district, and from otherwise interfering with or restraining your orator or any of said Chinese residents of said district in the exercise of their personal liberty to freely pass from said district to other parts of the city and county of San Francisco; and enjoining and restraining said defendants, and each and all of them, and their and each of their agents, servants inspectors, employees, and other subordinates, and all persons acting in their behalf, from in any manner interfering with or restricting complainant or any of said Chinese residents of said quarantined district in the matter of buying, selling, receiving, and delivering goods, wares, and merchandise, whether the same be purchased, sold, received, or delivered within the boundaries of said quarantined district or without the boundaries thereof; and enjoining and restraining the defendants, and each and all of them, and their and each and all of their agents, servants, inspectors, employees, and other subordinates, and all persons acting in their behalf, from in any manner interfering with complainant or any other of said Chinese residents of said quarantined district in the matter of employing and receiving the service and assistance of physicians of their choice to attend, examine, prescribe, and care for any and all persons that may be sick and afflicted or otherwise requiring or desiring the services of a physician; and enjoining and restraining said defendants, and each and all of them, and their and each and all of their agents, servants, inspectors, employees, and other subordinates from interfering with or preventing the attendance of any licensed physicians representing your complainant or the friends and relatives of deceased Chinese persons dying within said quarantined district, and from attending autopsies and post-mortem examinations held by said defendants, or any of them, their agents, servants, inspectors, employees, and other subordinates, and all persons acting in their behalf or being present at such examinations, as may have been necessary to ascertain the cause of the death of such deceased persons, or from committing the acts and carrying into execution the threats set forth in the bill of complaint herein.

This order to show cause shall be heard upon the bill of complaint and all other papers and pleadings on file in this action, and upon the affidavits of the parties above named, and such testimony and oral evidence as may be offered by the respective parties; and it having been made to appear that there is danger of great and irreparable injury being caused to complainant before the hearing of this order to show cause, unless said defendants, pending such hearing, are restrained as herein set forth; and said complainant having given good security in the sum of $1,000, the amount fixed by the court for making good to the defendants the damages and costs that may be awarded them by reason of the granting of this order—

It is further ordered that in the meantime and until the determination of this order, or until the further order of the court, you, the said defendants, John M. Williamson, Rudolph W. Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, and William P. Sullivan, jr., and each of you, your and each of your agents, servants, inspectors, employees, and other subordinates, and all persons acting in your behalf, are hereby enjoined and restrained in any manner from interfering with, restricting, or preventing any duly licensed physicians employed by the said complainant, or any of said Chinese residents of said quarantined district for the purpose of attending to, examining, prescribing, and caring for any and all persons that may be sick and afflicted, who have or may comply with the rules of said health board in relation to fumigation and protection from contagion.

Dated this 5th day of June, A. D. 1900.

Wm. W. Morrow, *Circuit Judge.*

(Indorsed:)

ORDER TO SHOW CAUSE AND RESTRAINING ORDER.

United States of America,
Northern District of California, ss:

I hereby return that I served the annexed order to show cause and restraining order on the therein-named John M. Williamson, Rudolph W. Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, and William P. Sullivan, jr., by handing to and leaving a true and correct copy thereof with John M. Williamson, Rudolph W. Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, and William P. Sullivan, jr., personally, together with a copy of the bill of complaint herein mentioned, at San Francisco, in said district, on the 5th day of June, A. D. 1900.

John H. Shine, *U. S. Marshal,*
By Geo. H. Burnham, *Office Deputy.*

Filed June 6, 1900.

Southard Hoffman, *Clerk.*

As will be seen by Surgeon Kinyoun's telegram of June 7, the hearing on the case was postponed and the following papers were filed by the defense:

In the United States circuit court, ninth circuit, northern district of California.

Jew Ho, complainant, v. John M. Williamson, Rudolph W. Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, and William P. Sullivan, Jr., Defendants.

RETURN TO ORDER TO SHOW CAUSE.

To the honorable the judges of the circuit court of the United States, ninth circuit, northern district of California.

Now come the above-named defendants and make this their joint and severa return to the order to show cause heretofore issued herein, and as and for such return show that no injunction or other restraining process should be issued herein, because:

1. It appears by the complainant's own showing by the bill herein that he is not entitled to the relief prayed by said bill against these defendants.

2. It appears from said bill of complaint of said complainant, on which said order to show cause was issued, that this court has no jurisdiction to hear and determine, or hear or determine, this action, or to issue any injunction or other restraining process therein.

3. The said bill of complaint herein is wholly without equity.

4. The said bill of complaint herein shows upon its face that said complainant has a plain, speedy, and adequate remedy at law in the premises.

5. The facts, matters, and defenses alleged in defendants' answer herein show that complainant is not entitled to the relief prayed by said bill; and said answer of said defendants is hereby expressly referred to and made a part of this return to said order to show cause.

Wherefore, these defendants pray the judgment of this honorable court that this return be deemed sufficient, and that they be hence dismissed with their reasonable costs in this behalf sustained.

J. J. Dunne,
Solicitor and of Counsel for Defendants.

Northern District of California, Ninth Circuit,
City and County of San Francisco, ss.

J. J. Dunne, being first duly sworn, on oath says that he is the solicitor for the defendants in the above-entitled action, and that in his opinion the foregoing return to the order to show cause herein is well founded in point of law; and on behalf of said defendants he says that the same is not interposed for delay.

J. J. Dunne.

Subscribed and sworn to before me this 12th day of June, 1900.

[SEAL.] Justin Gates,
Notary Public in and for said City and County and State.

(Indorsed:) Due service of the within, and receipt of a true copy thereof, are hereby admitted this 12th day of June, 1900. Reddy, Campbell & Metson, Maguire & Gallagher, Samuel M. Shortridge, John E. Bennett, solicitors and attorneys for complainant. Filed June 12, 1900. Southard Hoffman, clerk.

In the United States circuit court, ninth circuit, northern district of California.

Jew Ho, Complainant, v. John M. Williamson, Rudolph W. Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, and William P. Sullivan, Jr., Defendants.

ANSWER TO COMPLAINANT'S BILL OF COMPLAINT.

To the honorable the judges of the circuit court of the United States, ninth circuit, northern district of California:

Now come the above-named defendants, jointly and severally, and jointly and severally, now and at all times hereafter, saving to themselves and to each of them all and all manner of benefit of exception or otherwise that can or may be had or taken to the many errors, uncertainties, and imperfections in the said bill contained, answer the same, and answering say and show to said court as follows:

I. Said defendants are, and each of them is, resident in the city and county of San Francisco, State of California.

II. As to the allegations in said bill of complaint that said complainant is and was at all the times in said bill mentioned a resident of the city and county of San Francisco, State of California, in the northern district of said State of California, and was at all of said times and is now lawfully and rightfully residing therein, and was at all of said times and now is a subject of the Emperor of China and an alien of the United States of America, these defendants show to the court that they have no knowledge, information, or belief concerning the same, and therefore and on that ground deny the same and all thereof.

III. These defendants, and each of them, show to the court that a charter of the city and county of San Francisco, in said State of California, and in said northern district thereof, was duly, regularly, and lawfully prepared and proposed to the people of said city and county by a board of freeholders elected on December 27, 1897, in pursuance of the provisions of article 11 of the constitution of said State; that said charter so prepared and proposed was duly, regularly, and lawfully ratified by a vote of the people of said city and county on May 26, 1898, and duly, regularly, and lawfully approved by the legislature of the State of California on January 26, 1899; and under and pursuant to the provisions of law in that behalf, said charter went into full force, effect, and operation on January 8, 1900. It is provided in and by article 10 of said charter that a department of public health shall be created under the management of a board of health. The board shall consist of seven members, five of whom shall be appointed by the mayor, and who shall be regularly certificated physicians of the city and county at the time of their appointment, and who must have been such at least five years next preceding their appointment. The chief of police and the president of the board of public works, created by said charter, are made, by said charter, members of said board of health by virtue of their office. It is further provided in and by said charter that the members of said board shall serve without compensation; that they shall elect one of their number as president, and that they shall adopt such rules and regulations as may be necessary for the government of the board. Said charter further provided that the appointed members of said board shall hold office for four years, and that those first appointed under said charter shall so classify themselves by lot that one of them shall go out of office at the end of one year, one at the end of two years, one at the end of three years, and two at the end of four years. It is further provided in and by said article 10 of said charter that said board of health "shall have the management and control of the city and county hospitals, almshouses, ambulance service, municipal hospitals, receiving hospitals, and of all matters pertaining to the preservation, promotion, and protection of the lives and health of the inhabitants of the city and county" of San

Francisco aforesaid, and that said board may determine the nature and character of nuisances and provide for their abatement. It is further provided in article 10 of said charter that said board "shall have the sanitary supervision of the municipal institutions of the city and county, including jails, schoolhouses, and all public buildings; of the disposition of the dead; of the disposition of garbage, offal, and other offensive substances." It is further provided in said article of said charter that, subject to the provisions of said charter requiring bids for all municipal supplies, said board of health shall have the exclusive control and disposition of all expenditures necessary in institutions under its control. It is further provided in said article of said charter that said board of health "shall enforce all ordinances, rules, and regulations which may be adopted by the supervisors (of said city and county) for the carrying out and enforcement of a good sanitary condition in the city and county, for the protection of the public health, for determining the nature and character of nuisances and for their abatement, and for securing the proper registration of births, deaths, and other statistical information. It shall from time to time submit to the supervisors a draft of such ordinances, rules, and regulations as it may deem necessary to promote the objects" of said article of said charter. Said charter further provides in the above-mentioned article thereof that said board may appoint such officers, agents, and employees as may be necessary for the proper and efficient carrying out and enforcement of the purposes and duties of the board, and may fix their salaries and prescribe their duties, and that all appointments in said department of public health shall be made under the civil-service provisions of said charter, and that no person so appointed by said board shall be removed without cause. Said charter, in said article thereof, further provides that said board may appoint a resident physician of the city and county hospital in said city and county, who must be a regularly certificated physician and who must have been a resident of said city and county for at least five years next preceding his appointment, and who shall devote his time exclusively to the duties of his office. It is further provided by said article of said charter that said board shall appoint for said city and county hospital at least two visiting physicians and at least two visiting surgeons, who shall receive no compensation for their services, but who shall have the privilege of teaching students in their hospital ward, and that any student who is actively engaged in the study of medicine shall have the benefit of clinical instruction in any of the hospital wards, and that said board may set aside one ward in said city and county hospital for the treatment of confirmed inebriates. Said charter, in said article 10, further provides that said board may appoint such undergraduates and other internes to said city and county hospital as it may deem necessary; that they shall be appointed after a competitive examination by the board in any or all branches of medicine and surgery, and shall receive board and lodging free for their services, and that they shall be under the control and direction of the resident physician, who may remove any of them for neglect of duty or for other good and sufficient cause, subject to an appeal to and final decision by said board. Said charter, in said article 10 thereof, further provides that the said board of health shall fix annually the salaries of all of its officers and employees; that such compensation shall not exceed salaries paid for similar services in private institutions of like character, and that the ratio of employees to inmates of any institution under the care of the said board of health shall not exceed that maintained by private institutions of like character. It is further provided in section 3 of chapter 6 of article 8 of said charter that all police officers of said city and county of San Francisco shall be health officers by virtue of their office. And these defendants, and each of them, show to the court that during all the times mentioned in the bill of complaint herein they were, ever since have been, and now are the duly and regularly appointed and ex officio members of said board of health of said city and county of San Francisco, State of California, created by, under, and pursuant to said provisions of said charter; and during all the times in the bill of complaint herein mentioned they were, ever since have been, and now are the duly, regularly, and legally constituted board of health of said city and county of San Francisco, State of California, created by, under, and pursuant to the provisions of said charter, and duly and regularly qualified and acting as such board of health, and vested with all the powers and authority conferred upon them by the aforesaid provisions of said charter, and actually engaged in the enforcement and administration of said provisions of said charter. And said defendants, and each of them, further show to the board that in all the matters and things and transactions referred to in complainant's bill of complaint herein said defendants acted only as such board of health and not otherwise, in pursuance to and in enforcement and administration of the powers and authority hereinabove referred to as conferred upon and vested in them and in said board by the aforesaid provisions of said charter.

IV. Further answering Paragraphs III and IV of said bill of complaint, these defendants deny that they are maintaining any quarantine whatever by virtue of any resolution, as alleged in said bill of complaint; and in this behalf said defendants show the facts to be as follows: Under and by virtue of section 1 of chapter 1 of article 2 of the charter of the city and county of San Francisco, hereinabove referred to, the legislative power of said city and county of San Francisco is vested in a legislative body known and designated as the board of supervisors and as the supervisors; and pursuant to subdivision 1 of section 1 of chapter 2 of said charter said board of supervisors is invested with the power to ordain, make, and enforce within the limits of the city and county of San Francisco all necessary local, police, sanitary, and other laws and regulations. Pursuant to the powers and authority in said board of health vested by law, as hereinabove more fully alleged, said board of health did on May 28, 1900, adopt the following resolution at a special meeting:

"*Resolved*, That it is the sense of this board that, in consequence of the discoveries in the district bounded by Broadway, Stockton, California, and Kearny streets of nine deaths due to bubonic plague, which were verified by microscopical and animal inoculation tests, this board fears that there is still danger of the spread of this disease over a larger area, and therefore requests the board of supervisors to declare said district infected and authorize the board of health to quarantine said district."

Thereafter, on said 28th day of May, 1900, said resolution of said board of health was duly filed in the office of said board of supervisors; and thereupon said board of supervisors ordained, made, adopted, and passed, in due and lawful form and manner, the following ordinance:

"Bill No. 128. Ordinance No. 87. Empowering the board of health to quarantine persons, houses, places, and districts when in its judgment it is deemed necessary to prevent the spreading of contagious or infectious diseases.

"*Be it ordained by the people of the city and county of San Francisco, as follows:*

"SECTION 1. The board of health of this city and county is hereby authorized and empowered to quarantine persons, houses, places, and districts within this city and county when in its judgment it is deemed necessary to prevent the spreading of contagious or infectious diseases.

"SEC. 2. All orders and ordinances and parts of orders and ordinances, in so far as they conflict with the provisions of this ordinance, are hereby repealed.

"SEC. 3. This ordinance shall take effect from and after its passage."

Said ordinance was finally passed by a majority of all the members of the board of supervisors, and was approved by the mayor of said city and county, according to law. Said ordinance was immediately transmitted to said board of health, to wit, on May 29, 1900; and on said May 29, 1900, at a special meeting of said board of health, duly called, pursuant to law, said board of health adopted and passed the following resolution:

"*Resolved*, That whereas the board of supervisors of the city and county of San Francisco, at a meeting of said board held on May 29, 1900, adopted the following resolution:

"Empowering the board of health to quarantine persons, houses, places, and districts when in its judgment it is deemed necessary to prevent the spreading of contagious or infectious diseases.

"*Be it ordained by the people of the city and county of San Francisco, as follows:*

"SECTION 1. The board of health of this city and county is hereby authorized and empowered to quarantine persons, houses, places, and districts within this city and county when in its judgment it is deemed necessary to prevent the spreading of contagious or infectious diseases.

"SEC. 2. All orders and ordinances and parts of orders and ordinances, in so far as they conflict with the provisions of this ordinance, are hereby repealed.

"'SEC. 3. This ordinance shall take effect from and after its passage.'

"And whereas, after a careful and minute investigation had during a period of three months last past, and from the result of investigation made by Drs. Kellogg, bacteriologist to the board of health; Montgomery, of the University of California; Ophulf, of the Cooper Medical College, and J. J. Kinyoun, of the United States Marine-Hospital Service, each and all of whom have reported to this board that bubonic plague has existed in the district hereafter mentioned, and that nine deaths have occurred within said period within said district from said disease;

"And whereas this board has reason to believe and does believe that danger does exist to the health of the citizens of the city and county of San Francisco by reason of the existence of germs of the said disease remaining in the district hereafter mentioned: Now, therefore, be it

"*Resolved*, That the health officer be, and is hereby, instructed to place in quarantine until further notice that particular district of the city bounded north by Broadway, northeast by Montgomery avenue, east by Kearny, south by California, and west by Stockton streets; and that the chief of police is hereby requested to furnish such assistance as may be necessary to establish and maintain said quarantine.

These lines may be modified by the health officer or the chief of police, health board to be notified of the same. This resolution to take effect immediately."

And thereafter, on May 21, 1900, said board of supervisors in lawful meeting assembled, ordained, made, adopted, and passed in due and lawful form and manner, the following ordinance:

"Bill No. 129. Ordinance No. 85. Providing for the quarantine of the district bounded north by Broadway, northeast by Montgomery avenue, east by Kearny, south by California, and west by Stockton streets, and authorizing and instructing the board of health to enforce said quarantine; also directing the chief of police to furnish such assistance as may be necessary to establish and maintain said quarantine.

"Whereas the following communication from the board of health was filed in the office of the board of supervisors on May 28, 1900, to wit:

"'SAN FRANSCISCO, *May 28, 1900.*

"'*To the honorable the Board of Supervisors, city and county of San Francisco, Cal.*

"'GENTLEMEN: The inclosed resolution was adopted at a special meeting of the board of health held this evening, and is herewith transmitted to your board with the request that it be passed at once as an emergency measure.

"'*Resolved,* That it is the sense of this board that, in consequence of the discovery in the district bounded by Broadway, Stockton, California, and Kearny streets of nine deaths due to bubonic plague, which were verified by microscopical and animal inoculation tests, this board fears that there is still danger of the spread of this disease over a larger area, and therefore requests the board of supervisors to declare said district infected and authorize the board of health to quarantine said district.'

"Therefore,

"*Be it ordained by the people of the city and county of San Francisco, as follows:*

"SECTION 1. The district bounded north by Broadway, northeast by Montgomery avenue, east by Kearny, south by California, and west by Stockton streets is hereby placed in quarantine, and the board of health is hereby authorized and instructed to enforce said quarantine until the further order of the board of supervisors.

"SEC. 2. The chief of police is hereby directed to furnish such assistance as may be necessary to establish and maintain said quarantine.

"SEC. 3. All orders and ordinances and parts of orders and ordinances in so far as they conflict with the provisions of this ordinance are hereby repealed.

"SEC. 4. This ordinance shall take effect and be in force from and after its passage."

Said ordinance was finally passed by a majority of all the members of said board of supervisors, and was approved by the mayor of said city and county, according to law; and thereafter, on June 2, 1900, said ordinance was transmitted to and received by said board of health.

These defendants, and each of them, respectfully show to the court that it was under and pursuant to the authority just herein alleged, and not otherwise, that the quarantine in question was established, and has since been maintained; and these defendants further show that upon the establishment of said quarantine said board of health adopted reasonable regulations intended to prevent promiscuous communication between persons within said infected district who were exposed to the danger of contagion and persons without said infected district who were free from such danger; and that among such rules and regulations were regulations preventing the former class of persons from leaving said infected district and the latter class of persons from entering therein. These defendants, jointly and severally, deny that they or said board of health have established and maintained, or established or maintained, said quarantine, or said rules or regulations, without any right or authority whatever; but, on the contrary, aver that in establishing and maintaining said quarantine and in prescribing said rules and regulations they, said defendants and said board of health, acted under and by virtue of the power, authority, and jurisdiction in them vested by law. And in this behalf these defendants further show that in establishing and maintaining said quarantine, and in enforcing the same, and in establishing and enforcing said rules and regulations, these defendants and said board of health caused said quarantine and said rules and regulations to apply equally and similarly to all persons whatever, without distinction or discrimination of race, age, or sex, who might come within their purview.

V. These defendants, and each of them, have no knowledge, information, or belief of or concerning the matters and things alleged in the fifth paragraph of complainant's bill of complaint herein; and for that reason and upon that ground said defendants deny said allegations and each and all thereof.

VI. Further answering, these defendants, and each of them, deny that the resolution referred to in said bill of complaint, and in Paragraph VI thereof, or any resolution whatever, is by said defendants, their agents, servants, inspectors, employees, and other subordinates, or by any one or more of said defendants, or their agent or agents, or servant or servants, or inspector or inspectors, or employee or employees, or other subordinate or subordinates, or otherwise or at all, enforced against persons of the Chinese race and nationality only; and deny that said or any resolution whatever is now enforced against persons of other races; but on the contrary show to the court that the rules and regulations adopted by the said board in the matter of said quarantine have been and are enforced equally and similarly against all persons whatever equally and similarly situated who come within the purview, without distinction of race, age, sex, or nationality. And in this behalf these defendants show to the court and jointly and severally deny that all stores, residences, and other buildings on the north side of California street, between Kearny and Stockton streets, are within the quarantine district established as herein above related; and deny that any of said stores or residence or other buildings are within said quarantine district or subject to any of the restrictions or limitations of quarantine provided or enforced by said board of health; and deny that all stores, residences, and other buildings, or any store or residence or other building whatever on the west side of Kearny street, between California and Montgomery, is or are within said quarantine district established as hereinabove related, or subject to any of the aforesaid restrictions or limitations of quarantine; and deny that all stores, residences, or other buildings, or any store or residence or other building whatever, on the southwest side of Montgomery avenue, between Kearny street and Broadway, is or are within said quarantine district or subject to any of the aforesaid quarantine restrictions or limitations; and deny that all those stores, residences, or other buildings or any store or residence or other building whatever on the south side of Broadway, between Montgomery avenue and Stockton street, is or are within said quarantine district, or subject to any of the aforesaid quarantine restrictions or limitations; and deny that all the stores, residences, or other buildings, or any store, or residence or other building whatever on the east side of Stockton street, between Broadway and California street, is or are within said quarantine district, or subject to any of the aforesaid quarantine restrictions or limitations; and deny that any store, or residence, or house, or other building whatever, within said quarantine district, or subject to any of the aforesaid quarantine restrictions or limitations, whether occupied by Chinese persons or by persons of any other race whatever, is or are avowedly and notoriously, or avowedly or notoriously exempted by said board, or by these defendants, or by any one of them, or by their or any of their agents, servants, inspectors, employees, or other subordinates, from all or any of the restrictions or limitations of said quarantine. And in this behalf these defendants, and each of them, denies that the premises at Nos. 908, 910, 920, and 922 Stockton street are within the boundaries of said quarantine district, or subject to any of the aforesaid quarantine restrictions or limitations; and deny that they, in the enforcement of said quarantine, similarly, or otherwise, or at all, discriminate against all or any Chinese residents, or all or any occupants of any store, or residence, or other building whatever, on said east side of Stockton street, between California and Broadway streets; and deny that they similarly or at all discriminated or discriminate in favor of any store, or residence, or other building on said east side of Stockton street, between California and Broadway streets, or at any other place, or in any other manner, or at all, and deny that they, in the enforcement of said quarantine, or otherwise, or at all, either avowedly and notoriously, or avowedly, or notoriously, or at all, exempt and relieve, or exempt or relieve, from all or any of the restrictions or limitations of quarantine herein referred to, all or any store, or residence, or other building whatever, within said quarantine district, whether occupied by Chinese persons or not; and deny that they, or either of them, whether personally or through any of their agents, or servants, or inspectors, or employees, or other subordinates, discriminated in favor of, or avowedly, or notoriously, or otherwise, or at all, exempted or relieved from any of said quarantine restrictions any store, or residence, or other building on either side of Adler street, between Montgomery avenue and Dupont street, or any store, or residence, or other building on either side of Stark street (a cul de sac running easterly from the east line of Stockton street, between Pacific and Broadway streets, to about the middle of said block), or any store or stores, residence or residences, or other building or buildings on Pacific street, between Montgomery avenue and Stockton street, numbered 615, 617, 619, 621, 623, 625, 626, 628, 630, 738, 739, 740, 740½, 741, or 742, or any other number whatever, or any store or stores, residence or residences, or other building or buildings on Dupont street, between Pacific and Broadway streets, from the north side of Adler to the south side of Broadway, or at any other place or places whatever within said quarantine district; and deny that any store or stores, or residence or residences, or building or buildings, claimed by said complainant to be relieved from quarantine restrictions, constitute about one-fifth or any other proportion whatever of all or any of the buildings within said quarantine district.

VII. Further answering said bill, these defendants jointly and severally deny that in the enforcement of said quarantine, or otherwise, or at all, they, or any of them, their or any of their agents, or servants, or inspectors, or employees, or other subordinates, wantonly and willfully, or wantonly or willfully, or otherwise, or at all, discriminate against the Chinese residents, or any Chinese residents, or any residents, or any other person whatever, of or in said quarantine district, or in favor of any other residents or other persons, thereof or therein, by excluding from the limits of said district, or otherwise, or at all, all or any physician or physicians employed by Chinese residents to attend or prescribe for or care for sick persons of the Chinese race within said district, or in any other form or manner, or at all; and deny that they, or any of them, or their or any of their agents or agent, servant or servants, inspector or inspectors, employee or employees, or other subordinate or subordinates, freely or otherwise, permit, without let or hindrance, any other resident or residents of said district, or particularly any resident or residents of any of the store or stores, residence or residences, or other building or buildings, herein before mentioned, to select physicians of their choice to attend or prescribe or care for their sick, or freely or without let or hindrance, or otherwise, or at all, permit all or any such physician or physicians to enter or depart from all or any of such building or buildings to attend sick persons of races other than Chinese.

VIII. Admit jointly and severally that the sole purpose of said quarantine is to prevent the spread of bubonic plague among the inhabitants of the city and county of San Francisco and to outlying and other places; and in this behalf these defendants, and each of them, jointly and severally deny that there is not now or never has been any case of bubonic plague within the limits of said quarantine district, and deny that there is not now and never has been any germs or bacteria of bubonic plague within the limits of said quarantine district; and deny that said defendants, or each, or all, or any of them, well know or well knew that neither said bubonic plague nor any of the germs or bacteria thereof has ever existed within said quarantine district; and deny that said defendants, or any of them, well knowing that neither said bubonic plague nor any of the germs or bacteria thereof has ever existed in said quarantine district, have nevertheless quarantined the Chinese residents of said district wholly for other and ulterior reasons and purposes or otherwise, for other or ulterior reasons or purposes, or for any reason or purpose than the actual prevalence of bubonic plague within said quarantine district; and deny that said defendants, or any of them, have established said quarantine for the purpose of preventing the State board of health of the State of California, or any other board of health of any other State or community, whether prompted or instigated thereto by any false, or unwarranted, or exaggerated statements of sickness prevailing in said city and county of San Francisco, or prompted or instigated thereto by any other reason or motive whatever, from quarantining said city and county of San Francisco; and deny that said defendants, or any of them, established said quarantine for the further or any purpose of wrongfully, or unlawfully, or tyrannically, or otherwise, or at all oppressing, or annoying, or harrassing, or injuring the Chinese or any residents of said quarantine district, or any other person or persons whatever, in their or any of their persons or business or property rights, under the or any pretense whatever that such or any oppression whatever of said Chinese or any residents is necessary to the protection of the lives and health of the people of said city and county of San Francisco from the menace of said bubonic plague, or for any other motive, or reason, or purpose than the actual prevalence of said bubonic plague within said infected and quarantined district.

IX. These defendants are not able to tell whose "claims and assertions" are intended in the first line of the ninth paragraph of said bill. If said "claims and assertions" are intended by said complainant to mean claims and assertions of these defendants, or any of them, then these defendants, and each of them, deny that the claims and assertions that bubonic plague has existed and does now exist within said quarantine district rest solely upon certain bacteriological examinations of tissues taken from the bodies of deceased persons; and in this behalf these defendants show to the court that certain bacteriological examinations of tissues taken from bodies of deceased persons and examined have contained the germs of bubonic plague.

As to the allegations in said ninth paragraph that the orator is familiar with the history of the illness and death of each of the persons claimed by defendants as having within thirty days next preceding the filing of the complaint died of said bubonic plague, these defendants show to the court that they have no knowledge, information, or belief thereon sufficient to enable them to answer the same; and therefore, and for that reason, deny the same and the whole thereof.

As to the allegation in said ninth paragraph of said bill to the effect that the orator has had professional opinions upon the cause of death of all cases within thirty days prior to the filing of said bill, and believes that in each of said cases death resulted from other and different diseases than bubonic plague, and that the orator, disbelieving the existence of said plague and believing the defendants to be mistaken in reference thereto, and wishing to learn the truth from independent sources, on behalf of Chinese persons confined within said district, employed at great expense physicians and bacteriologists of great repute for skill and ability in their profession to visit suspected places, to attend autopsies in suspected cases, to diagnose such cases, and to make bacteriological examinations thereon, these defendants show to the court that they have no knowledge, information, or belief thereon sufficient to enable them to answer the same; and therefore, and for that reason, deny the same and the whole thereof.

Further answering, defendants deny that said or any physician or physicians employed by the orator complied with all or any rules or regulations for the admission of qualified physicians within said district for the or any purpose for which said physicians were employed by said or any Chinese residents; deny that these defendants or any of them well or at all knew the belief of the orator or of any other Chinese resident within said district that the cause of death which defendants said was bubonic plague was not bubonic plague; and deny that they well or at all knew the desire of the orator or any other Chinese resident of said district to obtain the truth thereon; and deny that they oppressed or continue to oppress the orator or any other Chinese resident of said district; and deny that they entertain the or any purpose of preventing the truth of the nonexistence of said bubonic plague in said district to become known to the orator or to any other Chinese resident; and deny that it is or has been the truth that said bubonic plague is nonexistent within said district; and deny that they or any of them, well or at all knowing the belief of the orator or any other Chinese resident within said district that the cause of death which they, said defendants, said was bubonic plague, was not bubonic plague, or well or at all knowing also the desire of the orator or any other Chinese resident of said district to obtain the truth thereon, have for the or any purpose of deceiving or continuing to deceive either the orator or any other Chinese resident of said district, or of oppressing or continuing to oppress the orator or any other Chinese resident of said district, or for the purpose of preventing the truth of the nonexistence of said bubonic plague in said district to become known to the orator or any other Chinese resident of said district, or for any other motive or purpose or reason whatever, absolutely or otherwise or at all refused or denied permission, or do still refuse or deny permission, to said or any physicians, bacteriologists, or experts, so or at all employed by the orator or any other person as aforesaid or otherwise, to enter the said quarantine district or to visit the sick therein; and in this behalf these defendants deny that they ever entertained the purpose of deceiving or continuing to deceive, or ever in fact deceived, or ever entertained the purpose of oppressing or continuing to oppress, or ever in fact oppressed the orator or any other Chinese resident of said district, and in this behalf deny the truth of the nonexistence of said bubonic plague in said district, and on the contrary aver and show to the court the existence of said bubonic plague within said district, and only within said district, and not elsewhere within said city and county of San Francisco.

X. Further answering, these defendants jointly and severally deny that said quarantine so levied as aforesaid upon said district was not levied because of the existence of bubonic plague therein, and on the contrary show to the court and aver that said quarantine was levied because of the actual existence of bubonic plague within said district; deny that not as great cause existed for the levying of said quarantine on May 29 as had existed at any time between May 15, 1900, and March 6, 1900; and in this behalf defendants show that in addition to the nine deaths referred to in complainant's bill, which said nine deaths resulted from bubonic plague, another, or tenth death, resulted from and was caused by bubonic plague on May 29, 1900, immediately following the levying of said quarantine; and that, in addition to the ten deaths already referred to, which said ten deaths were caused by bubonic plague, another, or eleventh death, resulted from and was caused by bubonic plague on June 2, 1900; and these defendants further show that all of said deaths occurred within said quarantine district, save and except the case of a Chinese female named Chin Moon, who died on May 14, 1900, from bubonic plague at the Pacific Hospital, to which place said Chin Moon had been brought from said quarantine district; and in this behalf these defendants further show that each and all of said eleven deaths from said bubonic plague were the deaths of Chinese persons; and these defendants further show that from March 6, 1900, up to and including the date of this answer no person other than a Chinese person has been found, either within said quarantine district or elsewhere within said city and county of San Francisco, either suffering from or in any way infected by said bubonic plague or dead by reason thereof. Deny, jointly and severally, that, for the purpose of circumventing the order or command of this court, or for any other reason except the actual prevalence of bubonic plague within said quarantine district, these defendants, on May 29, 1900, pretended the existence of bubonic plague within said district, or did falsely or otherwise than truthfully declare and publish that fact; and in this behalf defendants show that at said date, and within said district, said bubonic plague actually existed. Deny that these defendants, for the purpose of circumventing the order or command of this court, or for the purpose of oppressing or confining or imprisoning the orator or any other Chinese resident within said district, did levy or lay said quarantine, or did obstruct any street or highway or alley leading into or out of said district with ropes guarded by policemen, or did prevent your orator or other Chinese residents therein from removing from or passing out of said district, or did prevent persons desiring to enter said district from entering therein, contrary to the order or command of this honorable court in the case of Wong Wai against these defendants, made as aforesaid, or contrary to any order or command of said court in any case whatever against these defendants, or for any other purpose or motive or reason whatever.

XI.—These defendants deny, jointly and severally, that said quarantine so maintained as aforesaid, is unreasonable or partial, or unwarranted, or unlawful, either because 10,000 persons of the Chinese race are confined within the boundaries of said quarantine district, against all of whom said quarantine is being maintained, or for any other reason or reasons whatever; and these defendants deny that 10,000 persons of the Chinese race, or any person or persons whatever of the Chinese or any other race whatever, are "imprisoned" within said quarantine district; and deny that it is not now claimed or asserted by these defendants that there is at the present time any person in said district suffering from bubonic plague; and deny that said defendants have failed or neglected, so far as in them lay, to protect persons within said district from contact with persons alleged to have been exposed to the danger of contagion, and therefore likely to transmit the germs of said bubonic plague to others. And these defendants deny that they either believing that there is no danger whatever to the lives or health of the Chinese residents of said quarantine district or in absolute disregard or contempt of the lives or health of said or any 10,000 or other Chinese residents of said district, have utterly or in any manner or at all failed to make provision to protect their, or any of their, lives or health from the danger of the contagion against which they are protecting the residents of said city and county of San Francisco by maintaining said quarantine; and in this behalf these defendants show that if it be true that the said quarantine covers twelve blocks containing a population of more than 15,000 persons, thereby increasing rather than diminishing the danger of contagion and epidemic, that is only another reason why said quarantine should be maintained; and in this behalf these defendants show that the block bounded by Washington, Dupont, Clay, and Stockton streets, and the block bounded by Washington, Kearny, Clay, and Dupont streets, and the block bounded by Pacific, Dupont, Jackson, and Kearny streets and Montgomery avenue, and the block bounded by Broadway, Dupont, and Pacific streets and Montgomery avenue, are each and all occupied by the same class of persons who occupy the entire district, and surrounded by the same conditions and subject to the same epidemic possibilities, dangers, and contagion; and in this behalf these defendants deny that the Chinese or other inhabitants thereof either have been or are improperly or wrongfully, or wantonly, or oppressively included within said quarantine district either for the sole or any purpose of harassing or annoying or oppressing the orator or any other Chinese resident of said block or blocks, or for any other such purpose or for any purpose, except to prevent the spread of said bubonic plague, and to protect the health of the inhabitants of said city and county. And the defendants further show that the block bounded by Sacramento, Dupont, California, and Stockton streets, and the block bounded by Sacramento, Kearny, California, and Dupont streets, and the block bounded by Pacific, Dupont, Jackson, and Stockton streets are each and all occupied by the same class of persons who occupy the quarantine district, and surrounded by the same conditions and subject to the same epidemic possibilities, danger, and contagion; and in this behalf these defendants deny that the Chinese or other inhabitants thereof either have been or are improperly or wrongfully, or wantonly, or oppressively included within said quarantine district, either for the sole or any purpose of harassing or annoying or oppressing the Chinese or any resident of said block or blocks, or for any other such purpose, or for any purpose, except to prevent the spread of said bubonic plague and to protect the health of the inhabitants of said city and county. And these defendants further show that the block bounded by Clay, Dupont, Sacramento, and Stockton streets and the block bounded by Jackson, Dupont, Washington, and Stockton streets are each and all occupied by the same class of persons who occupy the quarantine district and surrounded by the same conditions and subject to the same epidemic possibilities, danger, and contagion; and in this behalf these defendants deny that the Chinese or any resident of said block or blocks either have been or are improperly, or wrongfully, or wantonly, or oppressively included within said quarantine district, either for the sole or any purpose of harassing or annoying or oppressing the Chinese or any resident of said block or blocks, or for any other such purpose, or for any purpose except to prevent the spread of said bubonic plague and to protect the health of the inhabitants of said city and county. And in this behalf these defendants deny that either or any or all of the three sets of blocks within said quarantine district, just herein referred to, either are not now or never have been in any danger of contagion or infection. And these defendants further deny that either a just or reasonable quarantine of any place, locality, or person infected or exposed to infection of contagion with bubonic plague is fifteen days from and after the last-known case of bubonic plague in such locality or place; and these defendants deny that either the germs or bacteria of bubonic plague either die or become harmless or inocuous at from three to seven days after release from any animal body, and, on the contrary, aver that said germs or bacteria of bubonic plague may live and retain their virulence and capacity for contagion for a long period of time after release from any animal body, namely, for months; and deny that said bubonic plague develops in the human system within a maximum period of five days after the same has been transmitted to a human being by inoculation or by any other means of introduction, and in this behalf these defendants show that said disease develops in the human system within a maximum period ranging from twelve to fifteen days after the same has been transmitted to a human being by inoculation or by any other means of introduction. And these defendants further deny the certainty that all danger of contracting said bubonic plague ceases at the expiration of fifteen days after the death of a person afflicted therewith; and these defendants further deny that they are employing either a new or unusual method of oppressing, or for the purpose of oppressing, the Chinese or any residents of said district either by constructing a high or substantial or other fence of posts, beams, or sawed lumber, and deny that they have ever threatened to continue, or that they will continue, to maintain said fence around or inclosing said quarantine district for the period of sixty or any days, or until the further pleasure of these defendants, unless the Chinese or any residents of said quarantine district, or each or any of them, shall consent to be by said defendants removed from said city and county of San Francisco to an island in the bay of San Francisco selected by said defendants, or to any other place or places whatever, there to remain during the pleasure of these defendants.

XII. These defendants jointly and severally deny that for the further or any purpose, either of oppressing or injuring or damaging the orator, or any other Chinese resident of said district, or with utter and wanton, or utter or wanton, or any disregard for either the lives or health of the orator or other Chinese residents aforesaid, they, these defendants, or any one of them, did ever cause to be imprisoned and confined, or did imprison or confine within said quarantine district, either the orator or any other Chinese resident.

As to the allegations contained in Paragraph XII of complainants' said bill, alleging that among the Chinese persons imprisoned and confined within said quarantine district are large numbers who depend for their living and sustenance upon their daily labor and who are employed outside said quarantine district, and who can not find employment therein, and that said persons, to the number of 4,000, are without means for the purchase of food for themselves and their families, and are now actually without food, and are themselves and their families suffering for food, these defendants show to the court that they have not knowledge, information, or belief sufficient to enable them to answer said allegations, and therefore and for that reason deny said allegations and each and all of them. These defendants deny that they ever imprisoned or restrained or detained either the orator or any impoverished or distressed or hungry or other Chinese person, and deny that they have refused at any time, or do now resolutely or at all refuse, to issue to or provide them with any food, and deny that they or any one of them demand that before any of the hungry or famished, if such there be, or other people within said district, shall be provided with any food whatever they shall submit to being removed and transported from their homes within said district and carried away and imprisoned and detained upon an island in the bay of San Francisco or at any other place, or place whatever. These defendants further deny that they ever refused to any person or persons whatever unable to procure food within said district the food necessary to maintain their standard of health or strength, and deny that they or any one of them do not believe that bubonic plague exists within said district, and deny that they are either willfully or wantonly or willfully and wantonly, or at all, exposing the lives and health or the lives or health of the Chinese or any other resident of said district to the ravages of said plague.

XIII. These defendants have not knowledge, information, or belief sufficient to enable them to answer the allegation in Paragraph XIII of said bill, that the orator herein has never had or contracted said bubonic plague, and therefore, and for that reason, they deny said allegations. These defendants further deny that said orator has never at any time been exposed to the danger of contracting said bubonic plague, and deny that said orator has never been in any locality where said bubonic plague, or any germs or bacteria thereof, has or have existed; but, on the contrary, these defendants state their belief that said orator is a Chinese person, and is a resident within said quarantine district where said plague has been in existence. These defendants further deny that they, or any of them, confined or imprisoned the orator, or any other Chinese resident of said district, within the limits of said district, or that they, or either of them, deprived the orator, or any other Chinese resident of said district, of the right to travel beyond the limits thereof; and these defendants deny that any action of theirs, or of either of them, is or was a purely or otherwise arbitrary, or unreasonable, or unwarranted, or wrongful, or oppressive, or in anywise improper interference with the personal liberty or other liberty of the orator, or of any other Chinese resident of said district, or with his or their right or rights, or the right of any of them to the pursuit of his or their or any of their lawful business or businesses.

XIV. These defendants jointly and severally deny that any resolution adopted by defendants as aforesaid, or otherwise, or at all, providing for said or any quarantine district, is or was wholly or at all unauthorized or invalid, or void, or contrary either to the constitution or laws of the United States, or contrary to or in violation of the laws of the State of California; but, on the contrary, defendants allege and show to the court that their action in the premises, and the whole thereof, was and is fully warranted and justified by law.

XV. Defendants deny that they or any of them have imposed any restraints or limitations upon the personal liberty of the orator, or of any other Chinese resident of said quarantine district, except such as may be necessary to prevent the spread of said bubonic plague, and to protect the health of the inhabitants of said city and county; and said defendants further deny that they have either made or caused any continued or other interference with either the personal rights or liberties, or any of them, or any right or liberty, of said orator or any other Chinese resident of said district, except such as may be and is necessary to prevent the spread of said bubonic plague, and to protect the health of the inhabitants of said city and county; and said defendants deny that they or any one of them have ever given out, or declared, or threatened that they or any one of them, or any of their subordinates, will continue to interfere with the personal rights and liberties, or rights or liberties, or any of them, of the orator, or any other Chinese resident of said district, unless restrained by this court; and these defendants deny that any act of theirs, whether past or contemplated, will inflict upon the orator, or any other Chinese resident of said city and county, any great or irreparable loss or injury, or any loss or injury whatever, or has already, or at all inflicted upon the orator loss and damage, or loss or damage, to the amount of more than five thousand dollars, or to any other amount, or at all.

XVI. These defendants deny that they have performed or authorized any act restraining or imprisoning, or restraining and imprisoning, any person or persons whatever, either residing or being in said quarantine district; and deny that either said quarantine or all or any act or acts of theirs, or of any one of them, in the enforcement thereof, or in restraining or imprisoning any person residing or being in said quarantine district, was or were, or are or is, directed solely and alone, or solely or alone, against the Chinese residents of said district; and on the contrary said defendants show that their acts in the enforcement of said quarantine were done and performed without any discrimination whatever, and by their said acts they treated similarly all persons similarly situated, without regard to race, age, sex, or nationality. And these defendants further deny that any act or order of theirs, or of any of them, is enforced by them, or their or any of their agents or servants or inspectors, or other employees whatever, against the Chinese residents of said district only, but, on the contrary, aver and show to the court that their acts and orders in and about said quarantine are enforced against other people within said district, and against people of other races and nationalities within said district. And these defendants further deny that any order or orders of theirs, or of any of them, in or about said quarantine, or the enforcement of any such order or orders by them, or by any of them, will deprive or does deprive either the orator or any of the Chinese residents of said quarantine district of the equal or any protection of the laws, or of their rights and liberties, or their rights or liberties, or any of them, either under the Constitution of the United States, or under the laws or treaties, or either or any of them, passed or adopted pursuant thereto.

XVII. These defendants have no knowledge, information, or belief sufficient to enable them to answer the seventeenth paragraph of said bill of complaint, and therefore and for that reason they deny all of the allegations contained within said seventeenth paragraph.

XVIII. These defendants deny that under or by the strict or any rules of the common law the orator is wholly or at all without remedy in the premises, or that he can obtain relief for the wrongs, injuries, and loss, or the threatened injuries and loss, or any wrongs, injuries, or loss, or any threatened or other injuries or loss, either in said bill of complaint set forth and specified, or otherwise, in a court of equity only, and deny that matters of the kind alleged in said bill of complaint are properly or at all cognizable or relievable in a court of equity only, or in a court of equity at all; and deny that the orator has no plain, speedy, or adequate remedy at law, nor any remedy at law for the prevention of the said threatened or any oppressive or wrongful acts; and, on the contrary, these defendants show to the court that said complainant has a plain, speedy, and adequate remedy at law in the premises.

XIX.—These defendants further show to the court that it appears by the complainant's own showing by the bill herein that he is not entitled to the relief prayed by said bill against these defendants; and that the said bill of complaint herein is wholly without equity. And these defendants further show that it appears from said bill of complaint of said complainant on which the order to show cause herein was issued, and upon this answer as well, that the court has no jurisdiction to hear and determine, or to hear or determine, this action, or to issue any injunction or other restraining process herein.

Wherefore, these defendants having fully answered, confessed, traversed, avoided, and denied all the matters in said bill of complaint material to be answered, according to their best knowledge and belief, humbly pray this honorable court to enter its decree that these defendants be hence dismissed with their reasonable costs and charges in this behalf most wrongfully sustained, and for such further and other relief in the premises as to this honorable court may seem meet and in accordance with equity.

J. J. DUNNE,
Solicitor and Counsel for Defendants.

UNITED STATES OF AMERICA, STATE OF CALIFORNIA,
Northern District of California, City and County of San Francisco, ss:

John M. Williamson, Rudolph W. Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, and William P. Sullivan, jr., being each and all first duly sworn, deposes and says, each for himself, and not the one for the other: That he is one of the defendants in the above-entitled action; that he has heard read the above and foregoing answer to the bill of complaint herein, and knows the contents thereof; and that the same is true of his own knowledge, except as to the matters therein stated upon information and belief, and as to those matters, that he believes it to be true.

JOHN M. WILLIAMSON.
RUDOLPH W. BAUM.
LOUIS BAZET.
WM. D. MCCARTHY.
VINCENT BUCKLEY.
GEORGE H. MENDELL.
WM. P. SULLIVAN, Jr.

Subscribed and sworn to before me this 11th day of June, A. D. 1900.

[SEAL.]
JUSTIN GATES,
Notary Public in and for the City and County of San Francisco, State of California.

In the United States circuit court, ninth circuit, northern district of California.

JEW HO, COMPLAINANT, v. JOHN M. WILLIAMSON, RUDOLPH W. BAUM, LOUIS BAZET, WILLIAM D. MCCARTHY, VINCENT BUCKLEY, GEORGE W. MENDELL, AND WILLIAM P. SULLIVAN, JR., DEFENDANTS.

UNITED STATES OF AMERICA, STATE OF CALIFORNIA,
Northern District of California, City and County of San Francisco, ss:

W. H. Kellogg, M. D., official bacteriologist of the board of health of said city and county; J. J. Kinyoun, M. D., surgeon, United States Marine-Hospital Service and Federal quarantine officer for the port of San Francisco; A. P. O'Brien, M. D., health officer of said city and county; H. A. L. Ryfkogel, M. D., professor of bacteriology in the University of California; F. P. Wilson, M. D., assistant city physician of said city and county; W. P. Chalmers, M. D., chief sanitary inspector of the board of health of said city and county; A. A. D'Ancona, M. D., professor of physiology in the University of California, and W. G. Hay, M. D., assistant to the chair of dermatology in the University of California, being each and all first duly sworn, deposes and says, each for himself, and not the one for the other, that he is a resident within said State of California; that he has heard read the answer of the above-named defendants to the bill of complaint filed in the above-entitled suit, and that the matters and facts set forth therein are true.

W. H. KELLOGG, M. D.,
Official Bacteriologist, Board of Health of San Francisco.
J. J. KINYOUN, M. D.,
Surgeon, U. S. Marine-Hospital Service, and Federal Quarantine Officer.
A. P. O'BRIEN, M. D.,
Health Officer, San Francisco.
H. A. L. RYFKOGEL, M. D.,
Professor of Bacteriology, University of California.
F. P. WILSON, M. D.,
Assistant City Physician, San Francisco.
W. P. CHALMERS, M. D.,
Chief Sanitary Inspector, Board of Health.
A. A. D'ANCONA, M. D.,
Professor of Physiology, University of California.
WM. G. HAY, M. D.,
Assistant Chair Dermatology, University of California.

Subscribed and sworn to before me this 11th day of June, A. D. 1900.

[SEAL.] JUSTIN GATES,
Notary Public in and for the City and County of San Francisco, State of California.

SENTINEL HOTEL,
Yosemite Valley, Cal., June 7, 1900.

In March of the year 1900, and I think on a Monday morning (the exact date I can not now state), I was notified by Dr. A. A. D'Ancona that I had been requested by the Merchants' Association to examine into the facts relating to the Chinese that constituted the first case of plague reported to have died in San Francisco, Cal. With this end in view I visited that same morning the bacteriological laboratory of the board of health, when I met Dr. Kellogg. Dr. Kellogg, bacteriologist of the board of health, showed me some fresh tissue which he said was a lymphatic nodule removed from the body of the above-mentioned Chinese. He, in my presence, pressed out juice from the tissue onto a cover glass, and stained this juice with suitably prepared coloring agents or dyes. On examining this cover glass so prepared bacilli were seen by me having the same shape, size, and coloring peculiarities as the bacilli pestis. The data demonstrated to me by Dr. Kellogg were characteristic of the plague, and very unlikely to occur in any other disease or condition.

The Sunday following the above-mentioned demonstration by Dr. Kellogg I was asked to attend the post-mortem examinations of a guinea pig and a rat, which Dr. J. J. Kinyoun said had been inoculated with an emulsion or juice made from the tissue of the lymphatic nodule removed from the above-mentioned dead Chinese. Both the guinea pig and the rat showed the post-mortem appearances characteristic of the plague, and preparations were made in my presence of the juice of the spleens and blood from the hearts of these above-mentioned animals for microscopic examination, which showed the presence in large numbers of bacilli having all the characteristics appertaining to plague bacilli. The facts were now so many, so concordant, and so irrefutable as to force the diagnosis in the above-mentioned dead Chinese as plague and nothing else. Since that time Dr. Kellogg has repeatedly shown me cultures which he said he had made from the lymphatic nodule taken from the above-mentioned dead Chinese, and these cultures were characteristic of the plague.

Since the above-mentioned first case of plague Dr. Kellogg has repeatedly shown me microscopic slides which he said were made from the tissues of other dead Chinese, and which also showed the bacilli characteristic of the plague. I also attended two post-mortem examinations of the bodies of two Chinese, both of which showed lesions found in those who die of the plague, and which on further examination by Dr. Kellogg were found to be cases of the plague.

D. W. Montgomery, M. D.

State of California,
County of Mariposa, ss:

On this 7th day of June, in the year 1900, before me, Charles B. Atkinson, a notary public in and for said Mariposa County, residing therein, duly commissioned and sworn, personally appeared D. W. Montgomery, M. D., known to me to be the person described in, whose name is subscribed to, and who executed the within instrument, and who acknowledged to me that he executed the same.

In witness whereof I have hereunto set my hand and affixed my official seal at my office in Yosemite, county of Mariposa, the day and year in this certificate first above written.

[seal.] Chas B. Atkinson,
Notary Public in and for Mariposa County, State of California.

(Indorsed:) Answer to complainant's bill of complaint. Due service of the within and receipt of a true copy thereof are hereby admitted this 12th day of June, 1900. Reddy, Campbell & Metson, Maguire & Gallagher, Samuel M. Shortridge, John E. Bennett, solicitors and attorneys for complainant. Filed June 12, 1900. Southard Hoffman, clerk.

AMENDMENT TO ANSWER MADE ORALLY AT HEARING OF APPLICATION FOR INJUNCTION PENDENTE LITE, JUNE 14, 1900.

Mr. Dunne (for defendants). Since the adjournment my time has been so taken up in endeavoring to get precise information concerning the boundaries of this district that I have not been able to put this amendment into writing, and with your honor's permission, and consent of counsel, that may be done hereafter, and I will make a parol amendment at this time of the answer.

The buildings on the north side of California street form the south boundary of the district—the buildings themselves do. The buildings upon the west line of Kearny street form the east boundary of the district. The buildings upon the southeast side of Montgomery avenue form the northwest boundary of the district, and so around the remaining sides of the district. These buildings which form these boundaries are subject to quarantine limitations and restrictions in this, that while no rope is stretched in front of them they are guarded from the rear, and neither entrance nor exit is permitted between those buildings and the grounds immediately adjacent thereto. These rules, limitations, and restrictions, and this condition of facts is true of the remaining sides of this district. In the 900 block on Stockton street, which forms the west boundary of the quarantine district, is No. 926, the alleged place of business and the abode of the complainant. That places him within the quarantined district.

Mr. Campbell (for complainant). How about other portions on the east side of Stockton street, the other buildings and houses? Are they in the quarantined district?

Mr. Dunne. On the east side of Stockton street and in the 900 block there are two coal yards. These coal yards are operated by Italians. They are under quarantine limitation and restriction, with the exception that the proprietors thereof are permitted to vend their coal.

Mr. Campbell. How about the cannery in the 800 block?

Mr. Dunne. The cannery and consulate are not subject to the limitations mentioned in the pleadings here.

Mr. Campbell. How about the plumber next to the cannery?

Mr. Dunne. I do not know. I am not advised as to that. At all events, that plumber is not a complainant here.

(Indorsed:) Parol amendment to answer. Filed June 14, 1900. Southard Hoffman, clerk, by W. B. Beaizley, deputy clerk.

JUDGE MORROW'S REVIEW AND OPINION.

The following is Judge Morrow's review of the case and opinion upon which writ of injunction issued. Judge Morrow made it plain that this might be but a temporary settlement of the case, and in case conditions changed or a different showing could be made by defendants the decision might be modified.

The judge also stated that while it was eminently proper to quarantine infected dwellings, an indiscriminate quarantine of the whole of Chinatown would not be allowed:

In the circuit court of the United States, ninth circuit, northern district of California.

JEW HO, COMPLAINANT, V. JOHN M. WILLIAMSON, RUDOLPH W. BAUM, LOUIS BAZET, WILLIAM D. MCCARTHY, VINCENT BUCKLEY, GEORGE W. MENDELL, AND WILLIAM P. SULLIVAN, JR., DEFENDANTS. No. 12940.

FRIDAY, *June 15, 1900.*

OPINION ON ORDER TO SHOW CAUSE WHY INJUNCTION PENDENTE LITE SHOULD NOT ISSUE.

Reddy, Campbell & Metson, Maguire & Gallagher, Samuel M. Shortridge, and John E. Bennett, solicitors and counselors for complainant; J. J. Dunne, solicitor and counsel for defendants.

Before Morrow, circuit judge, and De Haven, district judge.

MORROW, circuit judge (orally):

Having reached a conclusion as to the disposition to be made of the order to show cause in this case, I deem the circumstances of such a character as to justify an announcement of that conclusion at this time without the delay incident to the preparation of a written opinion, which will be filed hereafter.

On the 28th of May, 1900, the board of health of the city and county of San Francisco adopted the following resolution:

"*Resolved,* That it is the sense of this board that in consequence of the discoveries in the district bounded by Broadway, Stockton, California, and Kearney streets of nine deaths due to bubonic plague, which were verified by microscopical and animal inoculation tests, this board fears that there is still danger of the spread of this disease over a larger area, and therefore requests the board of supervisors to declare said district infected and authorize the board of health to quarantine said district."

Thereafter, on the said 28th day of May, 1900, said resolution was filed in the office of the board of supervisors, and thereupon the board of supervisors passed the following ordinance:

"*Be it ordained by the people of the city and county of San Francisco, as follows:*

"SECTION 1. The board of health of this city and county is hereby authorized and empowered to quarantine persons, houses, places, and districts within this city and county when in its judgment it is deemed necessary to prevent the spreading of contagious or infectious diseases."

This ordinance was approved by the mayor of the city and thereafter transmitted to the board of health, and immediately thereafter, on the 29th day of May, 1900, at a special meeting of the board of health, a resolution was passed which, after stating the passage by the board of supervisors of the foregoing ordinance, provided as follows:

"And whereas, after a careful and minute investigation had during a period of three months last past and from the result of investigation made by Drs. Kellogg, bacteriologist to the board of health, Montgomery, of the University of California, Ophulf, of the Cooper Medical College, and J. J. Kinyoun, of the U. S. Marine-Hospital Service, each and all of whom have reported to this board that bubonic plague has existed in the district hereafter mentioned, and that nine deaths have occurred within said period within said district from said disease; and

"Whereas this board has reason to believe and does believe that danger does exist to the health of the citizens of the city and county of San Francisco by reason of the existence of germs of the said disease remaining in the district hereafter mentioned: Now, therefore, be it

"*Resolved,* That the health officer be, and is hereby, instructed to place in quarantine until further notice that particular district of the city bounded north by Broadway, northeast by Montgomery avenue, east by Kearney, south by California, and west by Stockton streets, and that the chief of police is hereby requested to furnish such assistance as may be necessary to establish and maintain said quarantine. These lines may be modified by the health officer or the chief of police, health board to be notified of the same. This resolution to take effect immediately."

Thereafter, on May 31, 1900, the board of supervisors passed another ordinance, which, after reciting the filing in the office of the resolution of the board of health of May 28, 1900, provided for the establishment of quarantine regulations in the district named, and directed the chief of police to furnish such assistance as might be necessary to establish and maintain this quarantine.

The complainant in this case, Jew Ho, alleges among other things that he resides at No. 926 Stockton street, within the limits of said quarantined district, and is engaged in the business of conducting a grocery store as the proprietor and manager thereof at his said place of residence, and that a great number of the patrons and customers of his said business reside at various places in the city and county of San Francisco outside the boundaries of said quarantined district and are now and ever since the 29th day of May, 1900, have been prevented and prohibited by the defendants from visiting, patronizing, and dealing with the complainant in his said grocery store; that the complainant has been prevented and prohibited, since the said 29th day of May, 1900, from selling his goods, wares, and merchandise, and from otherwise carrying on the business in which he is engaged.

The complainant also alleges that although the said resolutions of the board of supervisors and the defendant board of health are in general terms and purport to impose the same restrictions, burdens, and limitations upon all persons within the said quarantined district, the said resolution is enforced against persons of the Chinese race and nationality only and not against persons of other races. In this behalf it is alleged that all stores, residences, and other buildings within the quarantined district, as described in the resolution, occupied by persons of races other than Chinese, are not subjected to any of the restrictions or limitations provided for by said resolution, whereas those occupied by Chinese are subjected to said restrictions.

It is also alleged that wanton and willful discrimination against the Chinese residents of said district by the defendants is shown by the exclusion from the limits of said districts of all physicians employed by Chinese residents and by the free permission to other residents of said district to select physicians of their own choice, and the permission to all such physicians to enter and depart from all buildings occupied by persons of races other than Chinese within said quarantined district.

The complainant alleges that there is not now and never has been any case of bubonic plague within the limits of said quarantined district, nor any germs or bacteria of bubonic plague, and that other diseases caused the illness and death of the persons claimed by defendants to have died of the bubonic plague within the thirty days next preceding the filing of this complaint.

It is further alleged that the defendants have failed and neglected to quarantine the houses alleged to be so infected from the remainder of said quarantined district, and have wholly failed and neglected to quarantine or otherwise isolate from the other residents of said quarantined district the persons alleged to have been so exposed to the danger of contagion and therefore likely to transmit the germs of said bubonic plague to others, but have included in said quarantined district an unreasonably large and populous district, namely, twelve blocks, containing a population of more than 15,000 persons, thereby increasing rather than diminishing the danger of contagion and epidemic both to the people of said district and to the people of San Francisco generally, if there should be any epidemic disease existing in said district; that within said quarantined district are several blocks in which it is not claimed or asserted by the defendants that any case of bubonic plague has existed for forty days and more next preceding the filing of the complaint, and in which there is not now and never has been any danger of contagion or infection.

The complainant alleges that he has never had or contracted said bubonic plague, that he has never been at any time exposed to the danger of contracting it, and has never been in any locality where said bubonic plague or any germs or bacteria thereof has or have existed; that the action of the defendants in confining and imprisoning the complainant and other Chinese residents within the limits of said quarantined district is a purely arbitrary, unreasonable, unwarranted, wrongful, and oppressive interference with the personal liberty of the complainant and the said Chinese residents and with their right to the pursuit of their lawful business; that said resolution providing for the said quarantine and designating said quarantine district is wholly unauthorized, invalid, and void, and contrary to the Constitution and laws of the United States, and contrary to and in violation of the laws of the State of California; that it is not enforced against other residents of said district than those of the Chinese race, and that by its enforcement the said Chinese residents of said district are deprived of the equal protection of the laws and of their rights and liberties under the Constitution of the United States and the laws and treaties passed and adopted in pursuance thereof.

The complainant brings this suit in behalf of the Chinese residents of said quarantined district to the number of 10,000 and upward, as well as in his own behalf.

The prayer of the bill is that an injunction be granted enjoining and restraining the defendants from interfering with the personal rights and privileges of the complainant.

Upon the filing of this bill of complaint, together with affidavits supporting the allegations therein contained, the court issued an order to the defendants to show cause why an injunction should not issue to restrain them from committing the acts and carrying into execution the threats set forth in the bill of complaint. To this order return has been made by answer. In this answer the defendants allege the organization of the board of health, the provisions of the charter of San Francisco, the authority of the board of health, and the authority of the board of supervisors as derived from the provisions of the charter. They allege that the board of supervisors have passed certain resolutions, to which I have already referred, and that they have acted in pursuance of the authority conferred by the charter, and that in establishing this quarantine district the defendants have been acting under the authority of the resolutions passed by the board of supervisors and their own resolution in pursuance thereof.

As the answer was originally framed it denied that the complainant was within the quarantine limits as prescribed; but by oral amendment to the answer it is alleged that the particular place of residence of the complainant is included within the quarantined district. The defendants deny that they or any of their agents in the enforcement of said quarantine regulations exempt or relieve from all or any restrictions of quarantine all or any store or residence or other building whatever within said district. With regard to the averment that the complainant has never had or contracted the bubonic plague the defendants state that they have not knowledge, information, or belief sufficient to enable them to answer; but they deny that the complainant has never at any time been exposed to the danger of contracting said bubonic plague and that he has never been in any locality where said plague or any germs or bacteria thereof has or have existed. On the contrary, the defendants state their belief that the complainant is a Chinese person and a resident within said quarantined district, where said plague has had its existence.

To this answer the complainant excepted orally, on the ground that it did not respond to the equities of the bill, in this, that with respect to the charges of detention and restriction of the complainant, the defendant's answer is that they have no information or belief with respect to the matters upon which the restraint is made or effected. It is contended that the defendants having failed to answer fully and directly as to the cause of restraining the complainant of his liberty, the bill must be taken as confessed. The bill of complaint is not a bill of discovery and can not be treated in that light. It is true that, after stating the matters of complaint, it concludes with the prayer that a subpœna issue and that the defendants be required to make full, true, direct, and perfect answer to the matters therein contained. But, under the equity practice, it is not required that the defendants in such a case shall do more than deny or answer the bill of complaint; they are not called upon to make a discovery or to make specific disclosures concerning the matters therein contained. Moreover, the bill waived an answer under oath; but for the purpose of being used as an affidavit the answer is verified. In that form it has been introduced as a part of the return in response to the order to show cause. There is some objection to the form of the answer as an affidavit, because, as an affidavit, it should be specific in reply to the matters charged in the bill of complaint. The equities of the bill are that the complainant is being unlawfully restrained of his liberty and illegally deprived of the use of his property. The substantial answer to that charge is that the complainant is being restrained of his liberty and deprived of the use of his property by reason of certain quarantine regulations, and that as to whether or not he has so exposed himself as to render himself personally subject to the restrictions of quarantine regulations the defendants have no information or belief. Under the strict rules of equity practice this answer, as an affidavit, would not be sufficient to meet the equities of the bill. But the court must take notice of the whole case, and it is evident therefrom that the answer of the defendants, averring that they have no knoweldge or information or belief concerning the exposure of this complainant to this disease, is a difficulty or weakness that is inherent in the case and not alone in the pleadings. We find from other portions of the pleadings that there are in this quarantined district some 10,000 people or more. It is quite likely that with respect to such a large number in a district of that character there would be a great number, and perhaps the great majority, concerning which the defendants would have no knowledge, information, or belief. They could have no information concerning individuals upon which to found any belief, and therefore they have made denial in accordance with the circumstances of the case. Considering the pleading as dealing with a single case or a single fact, it would of course be insufficient; but when it comes to dealing with a large population, 10,000 or more, the court must recognize that the lack of information on the part of the defendants is an informity that belongs to their case on the merits. The court will therefore not sustain the objection to the answer upon the ground that there is a defect in the showing made in the answer, but will consider that the case is inherently weak in this respect upon the actual facts alleged.

The next objection that has been interposed by the complainant to the sufficiency of the answer is that it does not appear therefrom that the ordinance has been passed with the formality required by the charter. I have examined the evidence that has been furnished to the court by these affidavits, and I am unable to find any evidence sufficient to justify the court in holding that this ordinance has not been passed with the requisite formalities. It may be that the requirements of the charter have not been complied with in every particular in the enactment of the ordinance upon which the complaint is founded. But that fact does not appear from the evidence submitted to the court, and the allegations are such that the court must indulge the presumption that the ordinance has been passed with the requisite formalities.

The next objection interposed on the part of the defendants is that this court has no authority to examine into the questions in controversy; that, it appearing from this return that a duly constituted department of the municipality of San Francisco has made inquiry as to the situation attending an alleged epidemic of a contagious disease and has adopted resolutions and taken such steps as it deemed necessary, such action is an adjudication on the part of a department having exclusive jurisdiction and authority over the subject, and this court has no jurisdiction to inquire into the reasonableness or propriety of the acts of the defendants. That objection I understand counsel to make not only to this court as a court of general jurisdiction, but also to this court as a court having jurisdiction to determine Federal questions. I will consider the Federal aspect of the objection first, namely, the jurisdiction of this court to determine other than Federal questions.

The complainant alleges that he is an alien. He invokes the jurisdiction of this court on the ground of diverse citizenship. Where a cause is brought into this court upon that ground, the court has a concurrent jurisdiction with the State court to determine all the questions involved in the case. It has the same jurisdiction as the superior court of the State. It may inquire into the regularity and legality of proceedings of a municipality, or in any locality, precisely as would a State court. The cases to which counsel for defendants referred, wherein the Federal court denied itself the right to inquire into the legislation of States or municipalities, have arisen where the jurisdiction of the Federal court has been invoked on the sole ground that the controversy involved a Federal question. In such cases the complainant states the Federal question as the matter to be determined. If, for instance, in this case, a citizen of the State of California should come into this court and invoke its jurisdiction on the ground that this action of the board of supervisors involved a Federal question, and that it was contrary to the fourteenth amendment of the Constitution, an allegation of that character would state the ground of jurisdiction and subject of controversy, and it would be the only question this court would be called upon to examine. The court would not in such a case enter into the question of whether or not the action of the board of supervisors was in conformity with the constitution of the State or whether it was beyond the municipal powers of the city under its charter. All such questions would in that case be foreign to the investigation, and the court would be confined to the question as to whether or not it was contrary to the provisions of the fourteenth amendment to the Constitution of the United States. But in the case at bar the complainant comes into court as an alien, and invokes the jurisdiction of the court on the ground of diverse citizenship, and presents also the Federal question. The court is therefore not restricted in its jurisdiction to the Federal question, but may inquire into all matters relating to the legality of the restraint imposed upon the complainant.

It is next contended that the acts of the defendants in establishing a quarantine district in San Francisco are authorized by the general police power of the State intrusted to the city of San Francisco. The defendants rely upon a number of cases in support of this asserted jurisdiction and authority, among others the case of Mugler *v.* State of Kansas, reported in 123 U. S., at page 623. In that case it appears that the constitution of Kansas provided "that the manufacture and sale of intoxicating liquors shall be forever prohibited in this State, except for medical, scientific, and mechanical purposes." The legislature of the State enacted a statute to carry this constitutional provision into effect. Mugler, the proprietor of a brewery, was indicted in one of the courts of the State for violation of this statute, and was tried and convicted and sentenced to pay a fine. The case was appealed to the supreme court of the State, and there affirmed. A writ of error took the case to the Supreme Court of the United States. The question was whether the prohibition by the State of Kansas in its constitution and laws of the manufacture or sale within the limits of the State of intoxicating liquors for general use in the State as a beverage was fairly adapted to the end of protecting the community against the evils which result from excessive use of ardent spirits, and whether it was subject to the objection that under the guise of police regulations the State was aiming to deprive the citizen of his constitutional rights. The court, in passing upon this question, said:

"Power to determine such question, so as to bind all, must exist somewhere, else society will be at the mercy of the few, who, regarding only their own appetites or passions, may be willing to imperil the peace and security of the many, provided only they are permitted to do as they please. Under our system that power is lodged with the legislative branch of the government. It belongs to that department to exert what are known as the police powers of the State, and to determine, primarily, what measures are appropriate or needful for the protection of the public morals, the public health, or the public safety."

But the court did not stop with this declaration. It went further, and explained that the legislative authority was subject to limitations, and that it was for the courts to determine whether such limitations were exceeded when such legislative acts were called in question. The court said:

"It does not at all follow that every statute enacted ostensibly for the promotion of these ends is to be accepted as a legitimate exertion of the police powers of the State. There are, of necessity, limits beyond which legislation can not rightfully go. While every possible presumption is to be indulged in favor of the validity of a statute, Sinking Fund Cases (99 U. S., 700, 718), the courts must obey the Constitution rather than the law-making department of government, and must, upon their own responsibility, determine whether, in any particular case, these limits have been passed. 'To what purpose,' it was said in Marbury *v.* Madison (1 Cranch, 137, 176), 'are powers limited, and to what purpose is that limitation committed to writing, if these limits may, at any time, be passed by those intended to be restrained? The distinction between a government with limited and unlimited powers is abolished, if those limits do not confine the persons on whom they are imposed, and if acts prohibited and acts allowed are of equal obligation.' The courts are not bound by mere forms, nor are they to be misled by mere pretenses. They are at liberty—indeed, are under a solemn duty—to look at the substance of things whenever they enter upon the inquiry whether the legislature has transcended the limits of its authority. If, therefore, a statute purporting to have been enacted to protect the public health, the public morals, or the public safety, has no real or substantial relation to those objects, or is a palpable invasion of rights secured by the fundamental law, it is the duty of the courts to so adjudge, and thereby give effect to the Constitution."

And in the case of Chy Lung *v.* Freeman et al. (92 U. S., 275, 280), the same court, speaking of the right of a State, in the absence of legislation by Congress, to protect herself by necessary and proper laws, said:

"Such a right can only arise from a vital necessity for its exercise, and can not be carried beyond the scope of that necessity."

In Ex parte Whitwell (98 Cal., 73, 78) the petitioner was imprisoned by the sheriff of San Mateo County upon a charge of maintaining within the boundaries of that county a hospital for the treatment of insane persons without having procured a license so to do, as required by an ordinance adopted by the board of supervisors of that county March 16, 1892. The ordinance referred to purported to be one "to license, for purpose of regulation and revenue, the business of keeping * * * within the county of San Mateo * * * hospitals, asylums, homes, retreats, or places for the care or treatment of insane persons or persons of unsound mind, or inebriates, or persons affected by or suffering from any mental or nervous disease, or who are suffering from the effects of the excessive use of alcoholic liquors." The ordinance made it unlawful to maintain within the county of San Mateo any hospital, asylum, or place for the care or treatment for reward of any insane person or persons belonging to either of the classes mentioned in the title of the ordinance, unless the keeper of such hospital or asylum should have first procured a license therefor. The ordinance provided, however, that no license should be granted unless the board was satisfied that the building was fireproof by reason of being constructed of brick and iron or stone and iron; that the building should not be more than two stories in height, and that the same and the land used in connection therewith, or such part of said land as any of the patients were to have access to, was surrounded by a brick or stone wall not less than 18 inches in thickness and not less than 12 feet in height, and in which wall there was to be one opening, which opening should be closed by a solid iron door, so constructed and fitted into said wall as that the same might be securely fastened by a combination lock, and said door furnished with a combination lock. The petitioner was a physician and surgeon, and directed his attention to the treatment of persons afflicted as described in the ordinance. He had purchased a tract of land in San Mateo County and erected a building thereon prior to the passage of this ordinance for the accommodation of such persons during treatment, but this building was not of the character designated and required by the ordinance. It was claimed by the petitioner that the ordinance imposed unreasonable restrictions upon his right to prosecute a lawful business and to devote his property to a lawful use, and that such provisions were in conflict with the Constitution of the United States and of the State of California, and for that reason void. Upon the other hand, it was contended that the ordinance was a police regulation, and that the court was not authorized to declare it invalid because in its judgment the ordinance might be deemed unreasonable. Discussing this question, the supreme court, speaking through Mr. Justice De Haven, said:

"The police power—the power to make laws to secure the comfort, convenience, peace, and health of the community—is an extensive one, and in its exercise a very wide discretion as to what is needful or proper for that purpose is necessarily committed to the legislative body, in which the power to make such laws is vested. (Ex parte Tuttle, 91 Cal., 589.)

"But it is not true that when this power is exerted for the purpose of regulating a business or occupation which in itself is recognized as innocent and useful to the community, the legislature is the exclusive judge as to what is a reasonable and just restraint upon the constitutional right of the citizen to pursue such business or profession. As the right of the citizen to engage in such a business or follow such a profession is protected by the constitution, it is always a judicial question whether any particular regulation of such right is a valid exercise of legislative power. (Tiedeman's Limitation of Police Power, secs. 85, 194; State *v.* Jersey City, 47 N. J. L., 286; Commonwealth *v.* Robertson, 5 Cush., 438; Austin *v.* Murray, 16 Pick., 121.) * * *

"And this necessary limitation upon the power of the legislature to interfere with the fundamental rights of the citizen in the enactment of police regulations was recognized by this court in Ex parte Sing Lee (96 Cal., 354), in which case we said that the personal liberty of the citizen and his rights of property can not be invaded under the disguise of a police regulation.

"This power of the courts, however, to declare invalid what they may deem an unreasonable legislative regulation of a business or occupation which the citizen has the constitutional right to follow, although undoubted, must from the nature of the power be exercised with the utmost caution, and only when it is clear that the ordinance or law so declared void passes entirely beyond the limits which bound the police power, and infringes upon rights secured by the fundamental law.

"The true rule upon this subject is thus expressed by the supreme court of the State of Missouri in the case of St. Louis *v.* Weber (44 Mo., 542): 'In assuming, however, the right to judge of the reasonableness of an exercise of corporate power, courts will not look closely into mere matters of judgment where there may be a reasonable difference of opinion. It is not to be expected that every power will always be exercised with the highest discretion, and when it is plainly granted, a clear case should be made to authorize an interference upon the ground of unreasonableness.' "

It was held that the ordinance was unreasonable and void, and could not be sustained under the police power of the State.

In the case of Health Department *v.* Rector (145 N. Y., 32) the question was with respect to the regulations concerning the introduction of water into tenement houses. The decision is by Judge Peckham, now of the Supreme Court of the United States. The ordinance was sustained by the court, but in doing so the court declared very clearly the limitation upon the police power of the State, as follows:

"It has frequently been said that it is difficult to give any exact definition which shall properly limit and describe such power. It must be exercised subject to the provisions of both the Federal and State constitutions, and the law passed in the exercise of such power must tend in a degree that is perceptible and clear toward the preservation of the lives, the health, the morals, or the welfare of the community, as those words have been used and construed in many cases heretofore decided," citing a number of cases.

In the case of In re Smith (146 N. Y., 67) there was involved the quarantine of a house in which a person was charged with being exposed to the smallpox. There the court said:

"I think no one will dispute the right of the legislature to enact such measures as will protect all persons from the impending calamity of a pestilence and to vest in local authorities such comprehensive powers as will enable them to act competently and effectively. That those powers would be conferred without regulating or controlling their exercise is not to be supposed, and the legislature has not relieved officials from the responsibility of showing that the exercise of their powers was justified by the facts of the case. The question here is not whether the legislature had the power to enact the provisions of section 24 of the health law, but whether the respondent has shown that a state of facts existed warranting the exercise of the extraordinary authority conferred upon him. Like all enactments which may affect the liberty of the person, this one must be construed strictly, with the saving consideration, however, that, as the legislature contemplated an extraordinary and dangerous emergency for the exercise of the power conferred, some latitude of a reasonable discretion is to be allowed to the local authorities upon the facts of a case."

The case of Lawton *v.* Steele (152 U. S., 133) had relation to a regulation concerning the fisheries. The court said, with respect to the police power of the State:

"The extent and limits of what is known as the police power have been a fruitful subject of discussion in the appellate courts of nearly every State in the Union. It is universally conceded to include everything essential to the public safety, health, and morals, and to justify the destruction or abatement, by summary proceedings, of whatever may be regarded as a public nuisance. Under this power it has been held that the State may order the destruction of a house falling to decay or otherwise endangering the lives of passers-by; the demolition of such as are in the path of a conflagration; the slaughter of diseased cattle; the destruction of decayed or unwholesome food; the prohibition of wooden buildings in cities; the regulation of railways and other means of public conveyance, and of interment in burial grounds; the restriction of objectionable trades to certain localities; the compulsory vaccination of children; the confinement of the insane or those afflicted with contagious diseases; the restraint of vagrants, beggars, and habitual drunkards; the suppression of obscene publications and houses of ill fame; and the prohibition of gambling houses and places where intoxicating liquors are sold. Beyond this, however, the State may interfere wherever the public interests demand it, and in this particular a large discretion is necessarily vested in the legislature to determine not only what the interests of the public require, but what measures are necessary for the protection of such interests. (Barbier *v.* Connolly, 113 U. S., 27; Kid *v.* Pearson, 128 U. S., 1.) To justify the State in thus interposing its authority in behalf of the public it must appear, first, that the interests of the public generally, as distinguished from those of a particular class, require such interference; and, second, that the means are reasonably necessary for the accomplishment of the purpose and not unduly oppressive upon individuals. The legislature may not, under the guise of protecting the public interests, arbitrarily interfere with private business, or impose unusual and unnecessary restrictions upon lawful occupations. In other words, its determination as to what is a proper exercise of its police powers is not final or conclusive, but is subject to the supervision of the courts."

This I find to be the law as established in the various States of the Union as well as by the Supreme Court of the United States. These cases determine that this is a subject for judicial investigation; and the question therefore arises as to whether or not the quarantine established by the defendants in this case is reasonable, and whether it is necessary under the circumstances of this case. As I had occasion to say in the former case, Wong Wai *v.* Williamson et al., this court will of course uphold any reasonable regulation that may be imposed for the purpose of protecting the people of the city from the invasion of epidemic disease. In the presence of a great calamity the court will go to the greatest extent and give the widest discretion in construing the regulations that may be adopted by the board of health or the board of supervisors. But is the regulation in this case a reasonable one? Is it a proper regulation, directed to accomplish the purpose that appears to have been in view? That is a question for this court to determine.

Affidavits have been filed on behalf of the complainant in this case, one of them by Dr. J. I. Stephen, to which I will refer. Dr. Stephen says:

"I am a regular physician and surgeon, licensed to practice medicine and surgery in the State of California. I obtained my medical education and diplomas in London, England, and in Dublin, Ireland. I have been in the active practice of medicine and surgery for the past twenty years; for several years in London, England, where I held various official positions, such as surgeon to the police, medical officer of health, parish medical officer and public vaccinator, and for the past thirteen years in the State of California. I have given much time and study to the literature of the bubonic plague, and am familiar with the nature, symptoms, and characteristics of said disease. * * *

"The bubonic plague is a virulent, contagious disease, and under favorable conditions spreads with great rapidity. Those conditions are overcrowding and insanitary surroundings. The above defendants claim to have discovered since the said month of March, 1900, at varying intervals, 7, 8, or 9 dead bodies of Chinese whose death said defendants attribute to said bubonic plague. Bearing in mind the nature, symptoms, and characteristics of said disease, and the conditions generally prevailing in said district known as Chinatown, and now under quarantine, it is impossible to believe that these persons died of such disease. If said disease had existed in the form and under the conditions claimed by said defendants, hundreds, perhaps thousands of cases would have developed and many deaths ensued therefrom; for

I further aver that no proper or scientific precautions have been taken by said defendants to prevent the spread of said disease.

"Assuming that the said deceased persons died of said disease, it is my opinion, and I further aver, that said defendants have proceeded from erroneous theories to still more erroneous and unscientific practices and methods of dealing with the same; for instead of quarantining the supposedly infected rooms or houses in which said deceased persons lived and died, and the persons who had been brought in contact with and been directly exposed to said disease, said defendants have quarantined, and are now maintaining a quarantine over a large area of territory and indiscriminately confining therein between ten and twenty thousand people, thereby exposing, and they are now exposing to the infection of the said disease said large number of persons. Notwithstanding said lack of proper quarantining and said exposure of over ten to twenty thousand persons to infection during a period commencing in the early part of said month of March, 1900, there has not been found a single living case of said disease."

I read that affidavit for the purpose of showing the method adopted by the board of health for the suppressing of this so-called plague, namely, the quarantining of a large territory in the city of San Francisco, some ten or twelve blocks, in which there are located about 10,000 people. It must necessarily follow that where so many have been quarantined the danger of the spread of the disease would not diminish.

The purpose of quarantine and health laws and regulations with respect to contagious and infectious diseases, is directed primarily to preventing the spread of such diseases among the inhabitants of localities. In this respect these laws and regulations come under the police power of the State and may be enforced by quarantine and health officers in the exercise of a large discretion, as circumstances may require. The more densely populated the community the greater danger there is that the disease will spread, and hence the necessity for effectual methods of protection. To accomplish this purpose, persons afflicted with such diseases are confined to their own domiciles until they have so far recovered as not to be liable to communicate the disease to others. The same restriction is imposed upon victims of such diseases found traveling.

The object of all such rules and regulations is to confine the disease to the smallest possible number of people; and hence when a vessel in a harbor, a car on a railroad, or a house on land, is found occupied by persons afflicted with such a disease the vessel, the car, or the house, as the case may be, is cut off from all communication with the inhabitants of adjoining houses or contiguous territory, that the spread of the disease may be arrested at once and confined to the least possible territory.

This is a system of quarantine that is well recognized in all communities, and is provided by the laws of the various states and municipalities, that when a contagious or infectious disease breaks out in a place they quarantine the house or houses first, the purpose being to restrict the disease to the smallest number possible, and that it may not spread to other people in the same locality. It must necessarily follow that if a large section or a large territory is quarantined, intercommunication of the people within that territory will rather tend to spread the disease than to restrict it. If you place ten thousand persons in one territory, and confine them there as they have been in prisons and other places, the spread of disease of course becomes increased and the danger of such spread of disease is increased—sometimes in an alarming degree—because it is the constant communication of people that are so restrained or imprisoned that causes the spread of the disease. If we are to suppose that this bubonic plague has existed in San Francisco since the 6th day of March, and that there has been danger of its spreading over the city, the most dangerous thing that could have been done was to quarantine the whole city as to the Chinese, as was substantially done in the first instance. The next most dangerous thing to do was to quarantine any considerable portion of the city, and not restrict intercommunication within the quarantined district. The quarantined district comprises twelve blocks. It is not claimed that in all the twelve blocks of the quarantined district the disease has been discovered. There are, I believe, seven or eight blocks in which it is claimed that deaths have occurred on account of what is said to be this disease. In two or three blocks it has not appeared at all. Yet this quarantine has been thrown around the entire district. The people therein obtain their food and other supplies, and communicate freely with each other in all their affairs. They are permitted to go, from a place where it is said that the disease has appeared, freely among the other 10,000 people in that district. It would necessarily follow that if the disease is there, every facility has been offered by this species of quarantine to enlarge its sphere and increase its danger and its destructive force. I need not enlarge upon this feature of the case. It is set forth fully by the affidavits in the case, by the original complaint, and by the opinions of the physicians who have furnished evidence to the court. The court can not ignore this evidence and the condition it describes. The court can not but see the practical question that is presented to it as to the ineffectiveness of this method of quarantine against such a disease as this. So upon that ground the court must hold that this quarantine is not a reasonable regulation to accomplish the purposes sought. It is not in harmony with the declared purpose of the board of health or of the board of supervisors.

But there is still another feature of this case that has been called to the attention of the court, and that is its discriminating character. That is to say, it is said that this quarantine discriminates against the Chinese population of this city and in favor of the people of other races. Attention is called to the fact that while the board of supervisors has quarantined a district bounded by streets the operation of the quarantine is such as to run along in the rear of certain houses, and that certain houses are excluded while others are included; that, for instance, upon Stockton street, in the block numbered from 900 to 1000, there are two places belonging to persons of another race, and these persons and places are excluded from this quarantine, although the Chinese similarly situated are included, and although the quarantine in terms is imposed upon all the the persons within the blocks bounded by such streets. The evidence here is clear that this is made to operate against the Chinese population only, and the reason given for it is that the Chinese may communicate the disease from one to the other. That explanation, in the judgment of the court, is not sufficient. It is in effect a discrimination, and it is the discrimination that has been frequently called to the attention of the Federal courts where matters of this character have arisen with respect to Chinese. The case of Yick Wo *v.* Hopkins arose in this State out of the operation of an ordinance of this city respecting Chinese laundries. The supreme court in that case had been discussing cases where there were simply opportunities for discrimination, not an actual discrimination. The court points this out as not being a case where there was not merely opportunity for discrimination, but where there was an actual discrimination. The court says:

"In the present cases we are not obliged to reason from the probable to the actual, and pass upon the validity of the ordinances complained of, as tried merely by the opportunities which their terms afford, of unequal and unjust discrimination in their administration. For the cases present the ordinances in actual operation, and the facts shown establish an administration directed so exclusively against a particular class of persons as to warrant and require the conclusion that, whatever may have been the intent of the ordinances as adopted, they are applied by the public authorities charged with their administration, and thus representing the State itself, with a mind so unequal and oppressive as to amount to a practical denial by the State of that equal protection of the laws which is secured to the petitioners, as to all other persons, by the broad and benign provisions of the fourteenth amendment to the Constitution of the United States. Though the law itself be fair on its face and impartial in appearance, yet if it is applied and administered by public authority with an evil eye and an unequal hand, so as practically to make unjust and illegal discriminations between persons in similar circumstances, material to their rights, the denial of equal justice is still within the prohibition of the Constitution. This principle of interpretation has been sanctioned by this court in Henderson *v.* Mayor of New York, 92 U. S., 259; Chy Lung *v.* Freeman, 92 U. S., 275; Ex parte Virginia, 100 U. S., 339; Neal *v.* Delaware, 103 U. S., 370; and Soon Hing *v.* Crowley, 113 U. S., 703."

In the case at bar, assuming that the board of supervisors had just grounds for quarantining the district which has been described, it seems that the board of health in executing the ordinance left out certain persons, members of races other than Chinese. This is precisely the point noticed by the Supreme Court of the United States, namely, the administration of a law "with an evil eye and an unequal hand." Wherever the courts of the United States have found such an administration of the law, although it may be upon the face of the act or of the ordinance such a lack of discrimination as to otherwise justify the ordinance or the law, still if the court finds that in its practical operation, in its enforcement by the State or the municipality, there is that opportunity and that it is the purpose to enforce it "with an evil eye and an unequal hand," then it is the duty of the court to interpose and to declare the ordinance discriminating in its character, and void under the Constitution of the United States.

Therefore the court must hold that this ordinance is invalid and can not be maintained; that it is contrary to the provisions of the fourteenth amendment of the Constitution of the United States, and that the board of health has no authority or right to enforce any ordinance in this city that shall discriminate against any class of persons in favor of another.

There is one other feature of this case, and that is as to whether or not the bubonic plague has existed in this city, and whether it does now exist. The complainant alleges in his bill of complaint that it does not exist in San Francisco or in this quarantined district, and the bill is supported by the affidavits of a number of reputable physicians.

Dr. J. I. Stephen says in this regard: "I am the regularly appointed physician of the Chinese Empire Reform Association, which numbers several thousand Chinese residents in the State of California, and in the performance of my professional duties have made frequent visits to that portion of said city and county commonly known as Chinatown, and which is now under quarantine by order of the above defendants, and am well acquainted with the sanitary condition of said district, and with the people who reside therein. I am aware of the allegation of the above defendants that bubonic plague has existed within said quarantined district since the month of March, 1900, and am of the opinion, based upon my knowledge of said disease and familiarity with said district and the people residing therein, that said allegation is based upon totally inadequate evidence. The said defendants have formed their diagnosis upon the alleged recognition of bacilli found in the tissues of certain deceased Chinese persons, and upon incomplete animal experimentations, and have entirely ignored the clinical history of the disease.

"I further state that the post-mortem appearances that the said defendants claim to have found in their autopsies of said deceased persons, and which said defendants claim to be diagnostic of the presence of said disease, are found in many other diseases.

"I would further state that the said Chinese are particularly subject to enlarged glands due to syphilis and scrofula, and that the enlarged glands which are claimed to have been found in said deceased persons are not due to bubonic plague, but to the constitutional effects of either syphilis or scrofula.

"From these reasons, and facts hereinbefore stated, I draw the conclusion and therefore aver that said disease has not at any time since or during the said month of March existed, and that it does not now exist, within said district under quarantine or elsewhere in the city and county of San Francisco."

Dr. E. S. Pillsbury, professor of pathology and bacteriology at the College of Physicians and Surgeons, states that he personally examined and diagnosed all bodies of deceased persons dying within the quarantined district between May 30 and June 7, save one, and that he does not believe the bubonic plague now exists within the said district, or that it has existed there within the last four months.

Dr. H. D'Arcy Power, employed by the Chinese Six Companies, visited the quarantined district during the 30th and 31st days of May and the 1st and 2d days of June and saw all the sick persons and dead bodies then in said district. He states that none of the cases visited by him was a case of bubonic plague, and that he does not believe at the time of his visits there was a case of bubonic plague in said district, nor that one has since occurred. Dr. D. A. Hodghead testifies to the same effect.

Dr. George L. Fitch states that he attended one of the Chinese persons said by the board of health to have died of the bubonic plague, but that in his opinion the said Chinese died of pneumonia. Dr. Fitch states that from his knowledge he does not believe there are now any cases of bubonic plague within the district of Chinatown. Dr. E. C. Atterbury was with him on this case, and gives the same testimony.

Dr. Lydia J. Wyckoff states that she has practiced her profession during periods of epidemics of bubonic plague in other countries, and from her knowledge of said disease she is of the opinion that the cases which the board of health regard as having been bubonic plague were not in fact cases of true bubonic plague.

Dr. George A. Cable testifies that he attended three of the cases in the quarantined district now suspected by the board of health to have been bubonic plague; that such cases were not, in his opinion, bubonic plague, and that during the whole period of his practice within said district he has never at any time seen a case resembling bubonic plague. He states it as his opinion that bubonic plague does not now exist, nor has it ever existed, within said Chinatown.

Dr. Minnie G. Worley states that she attended the case of a Chinese girl on May 11, who subsequently died, and which case the board of health have declared was bubonic plague. That she diagnosed the case as typhoid fever; that no other person, to her knowledge, has contracted the bubonic plague or any disease from the said case, and in affiant's opinion the girl did not die from bubonic plague.

The evidence of Dr. Stephen and these other physicians show that at most there have been 11 deaths in the quarantined district which, on autopsy, have disclosed some of the symptoms of the bubonic plague. But there has been no living case under the examination of the physicians from which a clinical history has been obtained; and it does not appear that there has been any transmission of the disease from any of those who have died; from all of which the court infers that the suspected cases were not contagious or infectious, or, if contagious and infectious, they were but sporadic in their nature, and had no tendency to spread or disseminate in the city.

If it were within the province of this court to determine this issue, I think upon such testimony as that given by these physicians I should be compelled to hold that the plague did not exist and has not existed in San Francisco. But this testimony is contradicted by the physicians of the board of health. They have furnished the testimony of reputable physicians that the bubonic plague has existed and that the danger of its development does exist. In the face of such testimony the court does not feel authorized to render a judicial opinion as to whether or not the plague exists or has existed in this city. Indeed, that is one of the questions that courts under ordinary circumstances are disposed to leave to boards of health to determine, upon such evidence as their professional skill deems satisfactory. If they believe, or if they have even a suspicion, that there is an infectious or contagious disease existing within the city, it is unquestionably the duty of such boards to act, and protect the city against it; not to wait always until the matter shall be established to the satisfaction of all the physicians or all the persons who may examine into the question. It is the duty of the court to leave such questions to be determined primarily by the authority competent for that purpose. So that in this case the court does not feel at liberty to decide this question, although, as I have said, personally the evidence in this case seems to be sufficient to establish the fact that the bubonic plague has not existed and does not now exist in San Francisco.

It follows from the remarks that I have made that this quarantine can not be continued by reason of the fact that it is unreasonable, unjust, and oppressive, and therefore contrary to the laws limiting the police powers of the State and municipality in such matters; and second, that it is discriminating in its character, and is contrary to the provisions of the fourteenth amendment of the Constitution of the United States.

The counsel for complainant will prepare an injunction which shall, however, permit the board to maintain a quarantine around such places as it may have reason to believe are infected by contagious or infectious diseases, but that the general quarantine of the whole district must not be continued, and that the people residing in that district, so far as they have been restricted or limited in their persons and their business, have that limitation and restraint removed.

With respect to the examination of persons who have died, I have already issued a preliminary restraining order preventing the defendants from interfering with physicians attending upon persons claimed to be afflicted with this disease. It will result, probably, if other suspicious cases are found within San Francisco, in a quarantine immediately being imposed upon the proper locality or house or building. In such a case the physician who has been attending the person afflicted should be permitted to continue to attend; and, in case of a death, such physician as may be selected by the Chinese association mentioned in this case shall have a right to attend any autopsy that may be made. But, as before indicated to counsel, that privilege should not be abused. There should not be an effort on the part of everybody, out of curiosity and otherwise, to attend upon these autopsies. There should be some reasonable limit to such privilege. The board of health is charged with the responsibility of maintaining regulations for the protection of the health of this city, and there should be no unreasonable interference with its authority in matters of that kind. The board will have the right to maintain special quarantines in places suspected of having disease, and it has the right to enforce such regulations as it may deem proper in order to secure an absolute exclusion of such places from the remainder of the community.

I am authorized to say that Judge De Haven concurs in the conclusions here reached.

Mr. Dunne. Am I to understand that the judgment of your honor is a final judgment in this case?

The Court. No. The main case is not now before the court. The complainant claims damages against the defendants. This opinion merely goes to the issuance of the injunction, and only disposes of that part of the case for the present. It will now be for the court to proceed to the trial of the case upon the pleadings, when the pleadings shall be completed. The complainant has until the 1st of the month to file a replication to your answer, your answer having been filed in advance of the time provided by the rule, for the purpose of using it as an affidavit. The temporary injunction will issue, but it may be modified upon a proper showing. If the board of health has any ground upon which it desires to have this order modified, it can bring the matter into court and, if necessary, secure a modification of the order. It is not to be understood that this is a final disposition of the whole matter. It is only final in case there are no further developments or proceedings.

Mr. Dunne. If your honor will permit me, in accordance with the usual practice in these courts I will note an exception to the opinion and order made this morning, and with your honor's permission I will formulate the grounds of that exception and file it with the court hereafter.

Mr. CAMPBELL. We have no exception.

The COURT. It is not necessary. All your rights are secured by an exception.

Mr. SHORTRIDGE. May I ask counsel if the defendants will take notice of the decision and the injunction ordered, to the end that the quarantine may be raised?

Mr. DUNNE. The defendants will see that the opinions of the circuit judge are carried out to the letter.

Mr. SHORTRIDGE. You will waive the service of notice upon you?

Mr. DUNNE. You need not serve me with any notice.

Mr. SHORTRIDGE. And the quarantine will at once be raised?

Mr. DUNNE. I will attend to that. It will be done as soon as I can call the board together, if your honor please. Of course I can not do it in ten seconds.

The COURT. The law with respect to an injunction is that a counsel present in court takes notice of the granting of the injunction, and its execution is expected within a reasonable time.

Mr. CAMPBELL. We will present your honor during the day with an order as indicated by the court, enjoining the general quarantine, simply with the proviso that this general injunction does not interfere in any way with the quarantining of houses in which people are infected or of the persons with whom they have come in contact.

(Indorsed:) Filed June 21, 1900. Southard Hoffman, clerk.

In the circuit court of the United States, ninth judicial circuit, northern district of California.

JEW HO, COMPLAINANT, *v.* JOHN M. WILLIAMSON, RUDOLPH W. BAUM, LOUIS BAZET, WILLIAM D. MCCARTHY, VINCENT BUCKLEY, GEORGE W. MENDELL, AND WILLIAM P. SULLIVAN, JR., DEFENDANTS. No. 12940.

UNITED STATES OF AMERICA,
Northern District of California, City and County of San Francisco, ss:

I, Southard Hoffman, clerk of the circuit court of the United States of America, of the ninth judicial circuit, in and for the northern district of California, do hereby certify the foregoing to be full, true, and correct copies of the original bill of complaint, filed June 5, 1900; the order to show cause and temporary restraining order with marshal's return thereon, filed June 6, 1900; the return of defendants to order to show cause filed June 12, 1900; the answer of defendants to bill of complaint, filed June 12, 1900; the amendment to answer (made orally at hearing of application for injunction pendente lite June 14, 1900), filed June 14, 1900; and the opinion of the court on order to show cause why injunction pendente lite should not issue, filed June 21, 1900, in the above-entitled cause, as the same remain of record and on file in the office of the clerk of said circuit court.

In witness whereof I have hereunto set my hand and affixed the seal of said circuit court this 22d day of June, A. D. 1900.

[SEAL.] SOUTHARD HOFFMAN,
Clerk of the United States Circuit Court,
Ninth Judicial Circuit, Northern District of California.

WRIT OF HABEAS CORPUS CHUN AH SING VS. WILLIAMSON ET AL.

On June 9 one Lee Ah Soot petitioned for writ of habeas corpus in the case of Chun Ah Sing, alleged to be imprisoned in Chinatown by Williamson et al. The defendants denied the alleged imprisonment, the body of Chun Ah Sing was produced in court June 12, and the said Chun Ah Sing discharged from custody by Judge De Haven.

The papers follow:

In the district court of the United States, northern district of California.

IN THE MATTER OF CHUN AH SING, ON HABEAS CORPUS.

To the Hon. J. J. De Haven, Judge of the District Court of the United States, Northern District of California:

The petition of Lee Ah Soot respectfully shows as follows:

That Chun Ah Sing is unlawfully imprisoned, detained, confined, and restrained of his liberty by John M. Williamson, Rudolph Baum, Louis Bazet, William D.

McCarthy, Vincent Buckley, George W. Mendell, and William P. Sullivan, jr., claiming to be and acting as the chief of police and the board of health of the city and county of San Francisco, a municipal corporation within the State of California and the northern district thereof, within that certain district described and bounded as follows:

On the east by Kearney street; on the northeast by Montgomery avenue; on the north by Broadway street; on the west by Stockton street, and on the south by California street, in said city and county of San Francisco, State of California, northern district of California.

That the said imprisonment, detention, confinement, and restraint are illegal, and the illegality thereof consists in this, to wit:

That on or about the 29th day of May, A. D. 1900, the said John M. Williamson, Rudolph Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, and William P. Sullivan, jr., and each and all of them, claiming as aforesaid to be and acting as the board of health of the city and county of San Francisco, a municipal corporation within the State of California and the northern district thereof, did on the 29th day of May, A. D. 1900, pass and promulgate a resolution declaring that an epidemic disease known as bubonic plague existed within that portion of said city and county of San Francisco, bounded as above described, and providing for and establishing a quarantine of said above-described district, and authorizing and requiring their agents, servants, inspectors, employees, and other subordinates to prevent any person within the limits of said district at the time of the establishment of said quarantine from leaving said district, and to prevent any person not within the said district at the time of the establishment of said quarantine from entering said district without the permission of said John M. Williamson, Rudolph Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell and William P. Sullivan, jr., as such board of health of said city and county of San Francisco, until the further resolution and order of said board of health concerning said quarantine.

That at the time of the establishment of the quarantine of said above-described district the said Chun Ah Sing was within the boundaries thereof and that ever since the said 29th day of May, A. D. 1900, the said John M. Williamson, Rudolph Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, and William P. Sullivan, jr., and each and all of them, as such board of health of said city and county of San Francisco, claiming the right so to do under the laws of the State of California, but without any authority whatever, and by and through their agents, servants, inspectors, employees, and other subordinates, have imprisoned, detained, confined, and restrained and still continue to imprison, detain, confine, and restrain the said Chun Ah Sing within the aforesaid described district in said city and county.

That the pretext under which they imprison the said Chun Ah Sing is in that he was within the boundaries of the said quarantine district at the time of the establishment of said quarantine and that by reason thereof the said Chun Ah Sing had either come in contact with, or had been exposed to the aforesaid bubonic plague, whereas in truth and fact the said Chun Ah Sing has never been nor is he now exposed to the said bubonic plague, nor has he ever at any time prior to or since the said 29th day of May, 1900, come in contact therewith.

That said Chun Ah Sing is a subject of the Emperor of China, a resident of the city and county of San Francisco, State of California, and resides at No. 1005 Stockton street.

That it is claimed by said respondents herein named that there exists within said boundaries aforesaid a certain contagious and infectious disease known as the bubonic plague; and your petitioner alleges that the said district is composed of 12 blocks, in which reside some 10,000 or 12,000 Chinese residents of the city and county of San Francisco.

That it is only claimed that 9 cases of said plague have occurred within the said entire district since the 1st day of February, 1900.

That the said Chun Ah Sing, on whose behalf this petition is made, has not been near nor has he resided in any of the houses, buildings, or blocks in which any of said cases are said to have occurred, nor does he know, nor has he come in contact with any of the friends, relations, or persons who did come in contact with any of said suspected cases, but that he had at all times resided outside of said district until within about one hour before the levying of said quarantine, when he entered said district for the purpose of transacting some business at one of the stores therein and was refused the privilege of retiring from the same.

That said Chun Ah Sing is a laborer engaged in cooking for Mrs. Annie Davis, residing at 733 Bush street, and had been engaged there for more than thirty days prior to the levying of said quarantine, and that that is his home.

That he is entirely dependent upon his manual labor for his support. That since he has been within said quarantine district he has expended all of his means and has for the last three days been living upon the charity of his friends and acquaintances; and that, as he is informed and believes, although steps are now being taken by the charitably inclined merchants of San Francisco to relieve some of the wants of the destitute in Chinatown, that there are 3,882 persons who are destitute, and it is impossible, owing to the manner in which the quarantine is understood by the persons outside thereof, to administer to the wants of all these destitute persons, and that by reason thereof plaintiff has gone without food more than one day and only had one meal in the last twenty-four hours.

That said Chun Ah Sing and your petitioner are both subjects of the Emperor of China and residents of the city and county of San Francisco, State of California, in the northern district thereof.

And your petitioner further shows to this honorable court that within the district as herein described no one but persons of the Chinese race are restricted, and that others of other races and nationalities are permitted within said lines, and said quarantine is only enforced against residents of the Chinese race.

That said detention and imprisonment of said Chun Ah Sing are illegal and void in this:

1. That said Chun Ah Sing is not suffering with nor has he been exposed to the bubonic plague.

2. That the order and ordinance under which the said board of health and said chief of police are pretending to act are illegal, null, and void in this, that they deprive said Chun Ah Sing of his liberty without due process of law.

3. That they deny to him the equal protection of the law.

4. That said ordinance is unreasonable, oppressive, arbitrary, and discriminating, as it only discriminates against the Chinese race and is in conflict with the fourteenth amendment to the Constitution of the United States and the treaty made and entered into by and between the United States of America and the Empire of China.

That your petitioner, Lee Ah Soot, is a friend of said Chun Ah Sing and makes this petition on his behalf.

Wherefore, your petitioner prays that a writ of habeas corpus may be granted, directed to the said William P. Sullivan, jr., chief of police of the city and county of San Francisco, John M. Williamson, Rudolph W. Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, and George W. Mendell, commanding them and each of them to have the body of the said Chun Ah Sing before your honorable court at a time and place therein to be specified to do and receive what shall then and there be considered by your honor concerning said Chun Ah Sing, together with the time and cause of his detention, and that upon the hearing of said writ said Chun Ah Sing be released from said imprisonment and restored to his liberty.

Reddy, Campbell & Metson,
Maguire & Gallagher,
Samuel Shortridge,
John E. Bennett,
Attorneys for Petitioner.

State of California.
City and County of San Francisco, ss:

Lee Ah Soot, being duly sworn, deposes and says that he is the petitioner named in the foregoing petition subscribed by him; that he has read the same and knows the contents thereof, and that the statements therein made he believes to be true.

Lee Ah Soot.

Subscribed and sworn to before me this 9th day of June, 1900.

[seal.] Holland Smith,
Notary Public in and for the City and County of San Francisco,
State of California.

Let the writ issue as prayed for, returnable before the United States district court, northern district of California, on June 12, at 10 o'clock a. m. of that day.

John J. De Haven, *Judge.*

(Indorsed:) Filed June 9, 1900. Geo. E. Morse, clerk, by J. S. Manley, deputy clerk.

In the district court of the United States, northern district of California.

IN THE MATTER OF CHUN AH SING, ON HABEAS CORPUS. No. 12120.

The President of the United States of America to John M. Williamson, Rudolph Baum, Louis Bazet, William D. McCarthy, Vincent Buckley, George W. Mendell, and William P. Sullivan, jr., or whoever may have the custody or control of said Chun Ah Sing, greeting:

You are hereby commanded that you have the body of the above-named person, by you imprisoned and detained, as it is said, together with the time and cause of such imprisonment and detention, by whatsoever name the said person shall be called or charged, before the district court of the United States for the northern district of California, at the court room of said court, in the city and county of San Francisco, Cal., on the 12th day of June, 1900, at 10 o'clock a. m., to do and receive what shall then and there be considered in the premises.

And have with you then and there this writ.

Witness the honorable John J. De Haven, judge of the said district court, and seal thereof, at San Francisco, in said district, on the 11th day of June, A. D. 1900.

[SEAL.]

GEO. E. MORSE,
Clerk of said District Court,
By J. S. MANLEY, *Deputy Clerk.*

(Indorsed:) Filed June 12, 1900. Geo. E. Morse, clerk, by J. S. Manley deputy clerk.

In the district court of the United States, northern district of California.

IN THE MATTER OF CHUN AH SING, ON HABEAS CORPUS. No. 12120.

RETURN TO WRIT OF HABEAS CORPUS.

To the honorable John J. De Haven, judge of said district court:

The respondents herein respectfully return to said writ and show to said court that neither they nor any one of them have or has the body of the above-named person, except as hereinafter stated; and respondents deny that they, or either of them, either imprison and detain, or imprison or detain, or otherwise restrain of his liberty, the above-named person, in any manner whatever, except as hereinafter stated. These respondents further show that they are not able to produce the body of said person, because neither they nor any of them has said above-named person or knows him.

These respondents further show that ever since May 29, 1900, that portion of the city and county of San Francisco commonly known as Chinatown, and bounded approximately by California, Kearney, Montgomery avenue, Broadway, and Stockton streets, in said city and county, has been and still is duly and regularly placed in quarantine, according to the law in such cases made and provided; that said quarantine was levied thereon by the joint action of the board of supervisors and board of health of said city and county, duly authorized by law; that said quarantine was so levied because of the existence within said district of the contagious and infectious disease known as bubonic plague; that said disease known as bubonic plague has existed during said time within said district, and that said Chun Ah Sing, believed by respondents to be a resident within said district, has been exposed to said disease and to the danger of contagion therefrom. Said disease appeared in various different places in said district, and all of the residents within said district became exposed to the contagion thereof, and in pursuance to its duty to protect the public health of said city and county said authorities interrupted communication between persons within said district and those without.

Respondents further show that this writ of habeas corpus is an interference with the operation of the ordinary municipal laws in force in said city and county, and operating upon a matter within the municipal jurisdiction of said city and county, and an attempt to use the process of this court for the purpose of breaking said quarantine.

Respondents further show that the entire subject of said quarantine is the basis of a suit and the object of investigation therein, entitled Jew Ho *v.* J. M. Williamson et al., now actually pending in the circuit court of the United States for this district; and said suit comes on for hearing to-morrow, June 13, 1900; and respondents urge that it would be in furtherance of justice to defer this hearing until that suit shall have been determined.

J. J. DUNNE,
Counsel for Respondents.

(Indorsed:) Filed June 12, 1900. Geo. E. Morse, clerk, by J. S. Manley, deputy clerk.

In the district court of the United States, ninth circuit, northern district of California.

IN THE MATTER OF CHUN AH SING ON HABEAS CORPUS.

Comes now Chun Ah Sing, the person upon whose behalf the writ of habeas corpus was sued out in these proceedings, and denies the matters and facts in the alleged return herein, as follows:

He denies that he is not restrained of his liberty by the respondents herein.

He denies that since the 29th day of May, 1900, the portion of the city of San Francisco as described in said return has been, or that it still is, regularly placed in quarantine according to law, as in such cases made and provided, or that said quarantine was ever legally or lawfully levied by the board of supervisors or board of health of the city and county of San Francisco.

Denies that said quarantine, or any quarantine, was levied because of the existence within said or any district of any contagious or infectious disease known as bubonic plague, or any other contagious disease.

Denies that said bubonic plague has ever at any time existed at any place within said district.

Denies that he is or was a resident within said district or that he has ever been exposed to said disease or to the danger of contagion therefrom.

Denies that said disease has appeared in various or any portions of said district or that any of the residents of said district became or ever were exposed to contagion therefrom.

Denies that in pursuance of any duty said respondents interrupted communication between persons within said district and without.

REDDY, CAMPBELL & METSON,
MAGUIRE & GALLAGHER,
SAMUEL M. SHORTRIDGE,
JOHN E. BENNETT,
Attorneys for Petitioner.

STATE OF CALIFORNIA,
City and County of San Francisco, ss:

Chun Ah Sing, being duly sworn, deposes and says that he is the person mentioned in the foregoing answer and in whose behalf the writ of habeas corpus was sued out in these proceedings.

That he has heard read the foregoing answer and knows the contents thereof; that the same is true of his own knowledge, except as to the matters therein stated on information and belief, and as to those matters that he believes it to be true.

(Signature in Chinese.)

Subscribed and sworn to before me this 12th day of June, 1900.

J. S. MANLEY,
United States Commissioner for the Northern District of California at San Francisco.

(Indorsed:) Filed June 12, 1900. Geo. E. Morse, clerk, by J. S. Manley, deputy clerk.

At a stated term of the district court of the United States of America for the northern district of California, held at the court room, in the city of San Francisco, on Tuesday, the 12th day of June, 1900.

Present, the honorable John J. De Haven, judge.

IN THE MATTER OF CHUN AH SING ON HABEAS CORPUS. No. 12120.

In this matter, J. C. Campbell, esq., Samuel M. Shortridge, esq., and Robert Ferral, esq., attorneys for petitioner, and J. J. Dunne, esq., attorney for the respondents, being present in open court. The respondents, by their attorney, having made return to the writ of habeas, but having failed to produce the said Chun Ah Sing in court, as commanded, after hearing Mr. Campbell, Mr. Shortridge, and Mr. Dunne, it is ordered that the respondents produce the body of the said Chun Ah Sing in court at 2 o'clock of the afternoon of this day, to which time the hearing hereof is hereby continued.

At a stated term of the district court of the United States of America for the northern district of California, held at the court room, in the city of San Francisco, on Tuesday the 12th day of June, 1900.

Present: The honorable John J. De Haven, judge.

IN THE MATTER OF CHUN AH SING ON HABEAS CORPUS. No. 12120.

In this matter at 2 o'clock p. m., the body of Chun Ah Sing being produced in open court, and J. C. Campbell, esq., Samuel M. Shortridge, esq., and Robert Ferral, esq., attorneys for petitioner, and Chas. L. Weller, esq., on behalf of the respondents, being present in open court.

Mr. Campbell filed and read the answer of Chun Ah Sing to the return to said writ of habeas corpus, and read and filed in evidence in opposition to said return the affidavits of Anna B. Davis and Chun Ah Sing.

Mr. Weller then stated that the respondents do not controvert the facts in the answer and affidavits, nor do they object to the discharge of said Chun Ah Sing.

Thereupon, in consideration of the premises, it is by the court ordered that the said Chun Ah Sing be, and he is hereby, discharged from the custody whence produced.

I, George E. Morse, clerk of the district court of the United States for the northern district of California, do hereby certify the foregoing to be full, true, and correct copies of petition for writ of habeas corpus, writ of habeas corpus, return to writ of habeas corpus, answer to return of respondents, and minute entries of June 12, in the matter of Chun Ah Sing, on habeas corpus, No. 12120, now remaining on file and of record in my office.

Attest my hand and seal of said district court, this 22d day of June, A. D. 1900.

GEO. E. MORSE, *Clerk*,
[SEAL.] By J. S. MANLEY, *Deputy Clerk*.

DR. KINYOUN CITED FOR CONTEMPT OF COURT.

It being charged by Wong Wai, complainant in the first injunction suit hereinbefore published, that Surgeon Kinyoun was restricting travel in contempt of court's order of May 28, Judge Morrow decided that Dr. Kinyoun was not in contempt of court, the decision being concurred in by Judge De Haven as follows:

In the circuit court of the United States, ninth circuit, northern district of California.

WONG WAI, COMPLAINANT, v. JOHN M. WILLIAMSON ET AL., DEFENDANTS. No. 12937.

TUESDAY, *July 3, 1900*.

OPINION ON ORDER TO SHOW CAUSE FOR CONTEMPT.

Reddy, Campbell & Metson, Maguire & Gallagher, Samuel M. Shortridge, John E. Bennett, and Robert Ferral, solicitors for complainant.

F. L. Coombs, United States attorney, Marshall B. Woodworth, assistant United States attorney, for defendant J. J Kinyoun.

Before Morrow, circuit judge, and De Haven, district judge.

MORROW, circuit judge (orally):

On the 28th day of May, 1900, this court issued a writ of injunction in this cause enjoining and restraining the defendants, comprising the board of health of the city and county of San Francisco and J. J. Kinyoun, Federal quarantine officer at this port, from inoculating the complainant and other Chinese residents of this city against their will; from imprisoning, restraining, or confining the complainant or any of the Chinese residents of this city and county within the limits thereof, and from otherwise interfering with or restraining the complainant or any of said Chinese residents in the exercise of their personal liberty to freely pass from said city and county of San Francisco to other parts of the State of California.

On the 16th day of June, 1900, Wong Wai, the complainant, filed an affidavit stating that the defendant, J. J. Kinyoun, in disregard and defiance of said order of injunction and in contempt of this court, "prevented and prevents your affiant and others from passing beyond the territorial limits of said city and county of San Francisco, and restrains and confines your affiant and others within said city and county without any right whatever and in disobedience of said order of injunction."

It appears that on June 16, 1900, the complainant was desirous of taking passage on the steamer *Orizaba* for the port of Eureka, in this State, but was denied that privilege by the agents of the steamship company. Affidavits were introduced of four Chinese persons other than the complainant, residents of the former quarantined district of San Francisco, to the effect that on the same day they were also desirous of departing to Eureka and to other places within the State of California, but were unable to obtain transportation without a certificate from the defendant, Kinyoun; that the holder had in all respects complied with the United States quarantine laws and regulations and was in the opinion of the quarantine officer free from the infection of plague or the danger of conveying the same; that they presented themselves before said defendant, Kinyoun, and said certificate was refused by him for the sole reason that the applicants were Chinese. It is also averred that the officers and agents of the steamship company in refusing transportation to the affiants acted under the direct orders of said Kinyoun and not otherwise, and that said Kinyoun had stated to said officers and agents that if anyone were taken on board said steamship without said certificate the said steamship would be quarantined at its place of destination. Accompanying this evidence is the affidavit of Milton Bernard, a clerk in the employ of a firm of attorneys representing the complainant herein, stating that he accompanied the several Chinese persons to the office of Dr. Kinyoun, and substantiating the statements contained in their affidavits.

Dr. Kinyoun, in his return and reply affidavit, declares the statements of the complainant to be untrue; that to the best of his knowledge he did not see the complainant or the other Chinese on the 16th day of June, and did not issue orders or directions pertaining to them. He further states that if the complainant or others had applied for certificates to leave San Francisco for Eureka or other parts of the State he would have informed them that the transportation company was acting without authority from him in requiring such certificates, and that, on the contrary, his orders and directions to his assistants and subordinates were that certificates should not be required as a warrant for the traveling of any persons from San Francisco to any other part of this State. The return and affidavit are both under oath. Affidavits of the assistant surgeons in the United States Marine-Hospital Service detailed to assist Dr. Kinyoun also deny knowledge of the issuance of any orders by Dr. Kinyoun since May 28, 1900, requiring certificates of health to be obtained by persons desiring to travel between different parts of the State.

The opinion of the court in the injunction proceedings in this case held that the quarantine restrictions and regulations imposed by the defendants upon the complainant in traveling from San Francisco to other parts of the State were illegal and void, and so far as the judgment and opinion of the court related to the defendant Dr. J. J. Kinyoun, and his conduct as involved in the present contempt proceedings it declared the law to be—

First. That as quarantine officer in the Marine-Hospital Service of the United States at the port of San Francisco he had no jurisdiction, under the act of March 27, 1890, to impose quarantine regulations or restrictions upon any class of persons traveling from place to place within the State.

Second. That any quarantine regulation or restriction imposed upon any particular class of persons, as Chinese or Japanese, and not imposed upon others similarly situated, was an arbitrary and unreasonable interference with and discrimination against the individual liberty of the persons regulated and restrained, contrary to the provisions of the fourteenth amendment to the Constitution of the United States, and therefore void.

It is charged that the defendant Dr. Kinyoun has violated the injunction in both of these particulars. Examining his acts in this connection, we find from the evidence produced upon the trial that on June 14 he telegraphed his superior officer at Washington with regard to anticipated action of the court as follows:

"SUPERVISING SURGEON-GENERAL, *Washington, D. C.:*

"If Federal court orders abandonment cordon Chinese quarter, thereby permitting persons from infected district to depart from city, will, unless directed otherwise, enforce regulations of May 21 against all persons leaving San Francisco for other States. Will instruct common carriers to refuse transportation all persons desiring to leave San Francisco to other States unless on certificate marine-hospital officer.

Will reenforce guards State lines; also notify State boards surrounding States actual conditions existing here.

"KINYOUN."

On the day following, the court having enjoined the quarantine regulations theretofore existing, Dr. Kinyoun issued the following orders to the transportation companies in this city:

"SAN FRANCISCO QUARANTINE,
"*San Francisco, Cal., June 15, 1900.*

"In accordance with the law of March 27, 1890, and the regulations made thereunder, and promulgated by order of the President under date of May 21, 1900, you are hereby notified and directed, until further orders, not to issue transportation to anyone leaving San Francisco for other States or Territories of the United States unless on presentation of certificates signed by a marine-hospital officer. Inspectors of the Marine-Hospital Service now stationed at the State borders have been instructed to allow no passengers coming from San Francisco to pass the borders of the State on any common carrier unless a certificate is furnished. This has been made necessary on account of the lifting of the quarantine by order of the Federal court, thereby allowing people who have possibly been exposed to the infection of the plague to leave this city for other States.

"Respectfully,

"J. J. KINYOUN,
"*Surgeon M. H. S., Quarantine Officer.*"

And on the same day he sent the following telegram to quarantine officers and boards of health at Eureka and San Diego, in California, and to the same officers in other States:

"Federal court dissolves quarantine imposed by local board of health on Chinese district on account of 11 deaths from plague occurring from March 7 until June 2. Would suggest precautionary measures be instituted against all persons coming from the infected district. Have notified common carriers under law 1890 refuse transportation all persons leaving San Francisco for other States unless provided with certificate signed by marine-hospital officer.

"KINYOUN."

The purpose of the injunction in this case was to relieve the complainant and those similarly situated from the restraint and imprisonment which was the subject of controversy in the case. That restraint and imprisonment was charged to be that the complainants were not permitted to depart from San Francisco for other places within this State, and were confined within the territorial limits of San Francisco unless they submitted to inoculation by Haffkine prophylactic. It was determined that this restraint and imprisonment imposed upon the complainants by the defendants was, under the circumstances, illegal. The defendants, including the defendant Kinyoun, were accordingly directed by the injunction to desist from imposing the condition of inoculation upon complainants, and were required to permit them to freely pass from said city and county of San Francisco to other places in this State. In other words, the order of the court relieved the complainants from the restraint and imprisonment described in the bill of complaint, but it did not extend to or include a restraint or an actual or constructive imprisonment resulting from other conditions or growing out of other causes; hence the orders and regulations issued by the defendant Kinyoun directed to persons leaving San Francisco for other States and Territories did not come within the terms of the injunction. The original case did not involve that question, and it was not passed upon by the court. The only provision of these orders applicable to persons going from one part of the State to another is the suggestion contained in the telegram to the quarantine officers at Eureka, San Diego, and other places, wherein the defendant Kinyoun said: "Would suggest precautionary measures be instituted against all persons coming from the infected district." The infected district here referred to was the city of San Francisco, but the order itself had no relation to the departure of persons from San Francisco; at most it was but a suggestion to an officer at another port to take precautionary measures against the introduction of infected persons into such places. What those measures were to be does not appear from the order, nor is it explained in any of the testimony that has been introduced upon the hearing.

It is contended, however, as against the acts of the defendant Kinyoun, that in an interview with Capt. C. M. Goodall, of the Pacific Coast Steamship Company, he informed the latter that the orders which had been issued concerning travel between San Francisco and other States and Territories was applicable to persons traveling between San Francisco and the port of Eureka. This claim is not supported by the testimony of Captain Goodall. Indeed, the testimony of Captain Goodall and of the defendant Kinyoun are substantially in accord, to the effect that the defendant Kinyoun simply gave it as his opinion that vessels arriving at the port of Eureka would be subject to inspection by the quarantine officer at that port, and that such an inspection might result in placing the vessel and its passengers in quarantine, unless, in addition to the regular sanitary inspection of the vessel at San Francisco, the passengers had certificates of health from the marine-hospital officer at San Francisco. But the defendant Kinyoun does not appear to have required, as a condition or restriction upon the departure of either the vessel or the passengers, that passengers should provide themselves with these health certificates. It was optional with the passengers to procure health certificates or not, as they should see fit, as a matter of convenience or protection to themselves.

We must, therefore, hold that the defendant Kinyoun did not violate the order of the court in restraining the complainant or the other Chinese persons mentioned from departing from the city and county of San Francisco for the port of Eureka, as charged in the petition for the order to show cause.

We find no evidence to support the complainant's contention that after the injunction had been issued the defendant Kinyoun continued to discriminate in his orders and regulations against the Chinese as a class. It is true there was some testimony introduced to the effect that the defendant required of the complainant and other Chinese applicants for health certificates information as to whether they had been exposed to the plague or had been within the quarantined district, but it does not appear that this information was required of Chinese applicants exclusively. So far as appears from the testimony before the court this information was required of all persons applying for health certificates. This feature of the case may therefore be dismissed without further comment.

It is further urged that the court determined in this case that the regulations of May 21, 1900, issued by the Surgeon-General of the Marine-Hospital Service, were without authority of law because no Presidential proclamation has been issued, as required by the act of March 27, 1890, authorizing such regulations; and that enforcement of these regulations by the defendant, Kinyoun, as required by his telegrams of June 15, 1900, was itself a contempt of court. The answer to this contention is that the court did not find it necessary to decide whether the regulations of May 21, 1900, were duly authorized by Presidential proclamation or not, and therefore did not decide that question. What the court did was to suggest that it might be a question in the case if it were necessary to be considered, but placed the decision upon other grounds.

It follows, from what has been said, that it does not appear that the defendant, Kinyoun, has violated the injunction of the court in this case, and the order to show cause will therefore be discharged.

Judge De Haven concurs in this opinion.

[Indorsed:) Filed July 3, 1900. Southard Hoffman, clerk; by W. B. Beaizley, deputy clerk.

SMALLPOX IN THE UNITED STATES.

During the fiscal year 1900 the pandemic of smallpox in the United States has continued, and the number of cases has been somewhat in excess of that for the year 1899.

ASSISTANCE RENDERED STATE AND LOCAL HEALTH AUTHORITIES.

The Bureau has continued during this year its well-established policy, as announced in the annual reports for 1898 and 1899, of rendering assistance to State and local authorities by the detail of officers to furnish advice to communities where the diagnosis has been in dispute or communities without a health officer. Pamphlets relating to the diagnosis and suppression of smallpox have been mailed to every locality infected. There has been, as in the past year, much confusion regarding diagnosis, and I append hereto two letters written by the Bureau which will illustrate the character of the disputes over diagnosis which have occurred.

CORRESPONDENCE RELATIVE TO DISPUTED DIAGNOSIS.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., April 4, 1900.

SIR: Referring to your letter of April 21, inclosing a letter from Dr. N. M. Read, of Clarence, Mo., inquiring what is the opinion of the Marine-Hospital Service in regard to a disease now prevailing in the United States, and variously designated as Cuban itch, elephant itch, etc., I have to inform you that wherever investigation has been made by competent authority into the nature of the diseases prevailing under the above names they have been found to be cases of smallpox, generally mild in form, but sufficiently pronounced to be easily diagnosed by those experienced in the handling of this disease.

The widespread prevalence and extraordinarily low motality of the disease in the United States at the present moment has led to a great deal of carelessness and indifference on the part of the people in handling it.

I have caused the publications requested to be forwarded to Dr. Read, and his letter to you is returned, as requested.

Respectfully,

WALTER WYMAN,
Surgeon-General, M. H. S.

Hon. F. M. COCKRELL, *United States Senate.*

Dr. ARTHUR W. CLARK,
Health Officer, Lawrence, Kans.

SIR: Referring to your letter bearing no date and recently received, in which you state that you are having in your community a mild epidemic of what you consider smallpox, but which most of the local physicians have pronounced chicken pox, and giving the symptoms of this disease as observed by yourself, I have to inform you that from the information gathered from your letter I am of the opinion that your diagnosis is correct, and, further, that your apprehension that the continuance of cold weather will result in the increased virulence of the disease in question is justified by the history of the disease.

It is noted that you state that in many cases the eruption has been profuse, and in two cases confluent. This, in conjunction with the character of the eruption and with the other symptoms as given by you, would almost certainly preclude the diagnosis of chicken pox in these cases.

You state that you have had a few cases vaccinated, and in two of these the disease has run its course, and the vaccine "taken." The possible source of error under these circumstances, which must be borne in mind, are, first, that the "taking" of a vaccination may be apparently only, and may simply be an ordinary pustular sore from infection of the scratch or puncture of vaccination by pus cocci, or that the patient himself may be one of those extremely rare individuals with whom vaccination is no protection from smallpox, and vice versa, smallpox no protection from vaccination. These cases, however, are so rare as hardly to deserve consideration.

Your conclusion that neither a negative nor positive result in a few cases would justify a positive decision is unquestionably correct.

Respectfully,

WALTER WYMAN,
Surgeon-General M. H. S.

OFFICERS DETAILED TO ADVISE AND COOPERATE WITH STATE AND LOCAL AUTHORITIES.

During this year the Bureau detailed seven officers for the purpose stated above, viz, to render assistance and advice; and these officers visited in the course of their duties eighteen cities and towns. Following will be found the reports of some of the officers:

REPORT ON THE INVESTIGATION OF SMALLPOX IN NORTH CAROLINA AND GEORGIA.

WILMINGTON, N. C., *January 21, 1900.*

SIR: I have the honor to report, in obedience to your telegraphic instructious of January 13, 1900, to proceed to Greensboro, N. C., and Jesup, Ga., for the purpose of conferring with the authorities of those places relative to the smallpox situation. I arrived at Greensboro, N. C., on the afternoon of January 14, 1900, and had an interview with the mayor, Z. V. Taylor. I was given the following statement of the situation: Last spring there were several cases of smallpox in and around Greensboro, but the disease was stamped out, and no further trouble occurred until about December 1, 1899. About this date an eruptive disease, diagnosed as chicken pox by some of the local physicians, and smallpox by others, made its appearance at a tile factory some 4 miles from Greensboro.

Some three or four weeks ago the disease appeared in Greensboro, and much difference of opinion existed among the local physicians as to its diagnosis. However, as the disease continued to spread rapidly, the mayor determined to settle the question of diagnosis and adopt measures to prevent its further spread. With this object in view he requested, through the State board of health, the detail of an officer of the Marine-Hospital Service to determine the diagnosis and indicate the measures necessary for its suppression, it being understood that the diagnosis of such an officer would be accepted as final.

On the following morning, accompanied by the mayor and Dr. Broadnax, I visited some six or eight cases in the city and found them all to have smallpox. The cases were all negroes, and the disease was of the prevailing mild type. I found one case in a prisoner in the county jail and one in a pupil in the colored agricultural and mechanical college.

I also visited the Proximity Cotton Mills, located a short distance out of Greensboro. Here there is a community of some 2,000 persons, chiefly employees of the mills and their families. I found one case of smallpox in the person of one of the white employees, in the fourth day of the eruption.

I was informed by Dr. Broadnax that he had treated 27 cases in the city within the past month. It was not possible to say how many cases existed in the city, as no inspection had taken place before I left, but the authorities were making preparations for a thorough inspection. When I informed the mayor that the disease was smallpox, he requested that I have a talk with the citizens, and explain the situation to them and the measures necessary for its suppression. In accordance with this request, I met a mass meeting of the citizens in the county court-house at 4.30 p. m. and discussed the situation with them.

When smallpox made its appearance in the city last spring, compulsory vaccination was ordered and enforced. The "dry point" was used, and many inflamed arms resulted, consequently there is much opposition to vaccination at the present time.

I explained the difference in the preparation of the "dry point" and the glycerinized lymph. I also assured the audience that they need apprehend no such results from glycerinized lymph as had followed the use of the "dry point."

After my remarks, several prominent citizens, including the mayor, requested that I vaccinate them, which I did. I am gratified to be able to state that after my assurances in regard to the glycerinized lymph much of the opposition to vaccination was dissipated. I outlined the measures necessary to suppress the disease, and Mayor Taylor, who is a young man of energy and determination, at once proceeded to put my suggestions into execution. I furnished him with copies of the Service précis on smallpox, and plan of organization for its suppression. I have since learned that all the suggestions contained in those pamphlets are being thoroughly carried out.

I left Greensboro on the evening of January 15 and arrived at Jesup, Ga., the following morning. I met Mayor T. C. Slover and Drs. Tuten and Drawdy. I was informed that there was only one case of smallpox in the place. Two cases had appeared on January 5, one a white man and the other a negro, both having contracted the disease at the same time at Everett City, Ga. The negro had died a few days before my arrival. I saw the remaining case and found it to be smallpox in the eleventh day of the eruption and of a mild type. I gave the authorities the usual advice, met and discussed the situation with the citizens at a mass meeting, and explained the difference between glycerinized lymph and the "dry point," and vaccinated several persons.

I left Jesup at 5 p. m. for Brunswick, Ga., where I saw Dr. Butts, the health officer of the city. I learned that there were 20 cases of smallpox in the city, all negroes but 1. The cases had all made their appearance in a section of the city known as "Hell's half acre," inhabited almost entirely by negroes. All the cases and suspects had been removed from the city and were quarantined. Vaccination in the infected district had been performed. The suspects had not been disinfected before isolation, so I suggested that this be done. I left Brunswick at 8.30 p. m. for Atlanta.

I learned that smallpox existed at the following points in Georgia in this section, viz, Everett City, 2; Johnsons Station, Liberty County, 8; Waycross, 6; Backsley, Appling County, 1, and Sand Hill, Nahunta, and Pie, all in Wayne County, 1 each. The disease is scattered all along the southeastern and southern central part of

Georgia. A few months ago it also existed in the southwestern part of the State. I was informed that smallpox was prevailing in the northern part of Alabama, and in Mississippi, in the neighborhood of Jackson. The health officer of Florida informs me that there are 13 distinct foci in as many counties in Florida, all under the control of his office. He states that the disease could be eradicated from Florida but for the fact that it is being fed into the State from the neighboring States.

The disease, so far as I have seen, is still of the same mild type that has prevailed for the past few years, with a tendency to become more severe. Occasionally, severe confluent cases are found. The death rate continues very low, probably about one-half of 1 per cent.

I rejoined my station on January 18, 1900.

Respectfully, C. P. Wertenbaker,
Passed Assistant Surgeon, U. S. M. H. S.

REPORT ON INSPECTION OF SMALLPOX AT WINSTON, HIGH POINT, AND GREENSBORO, N. C.

Wilmington, N. C., *February 4, 1900.*

Sir: In obedience to your telegraphic instructions of January 29, 1900, to proceed to Winston, N. C., as expert diagnostician for smallpox, I have the honor to state that I left the following morning for Winston. I stopped between trains at Greensboro, visited the smallpox hospital, made photographs of several cases of smallpox, and had an interview with the mayor. I arrived at Winston the same evening, and was met at the depot by Dr. C. L. Summers, city health officer, who extended to me every courtesy. The following statement of the situation was given me:

Two weeks previous to my arrival a case of smallpox made its appearance in a white man, a resident of the city, the source of infection probably being Greensboro. The case and all known suspects were removed from the city limits and quarantined. All necessary precautions were taken, and a corps of inspectors and vaccinators was put to work in the city. The usual doubts as to the nature of the disease and the necessity for vaccination prevailed among the laity and some physicians, and a good deal of opposition to the enforcement of the vaccination ordinance was manifested. The authorities, having heard of the results of my recent visit to the neighboring city of Greensboro, asked that I might be sent to settle the diagnosis and discuss the situation with the people.

On the morning after my arrival, accompanied by the city physician and several other physicians, I visited the smallpox hospital and suspect camp. I found one patient to be in the eleventh day of the eruption of smallpox. The case was discrete, though the patient had quite a severe attack. I made several photographs of the case. In the afternoon I attended a mass meeting of some 700 or 800 citizens and discussed the situation with them.

These talks with the citizens have become quite a feature of my recent smallpox work. There is usually a great deal of interest manifested in the situation, and, as my coming is usually heralded in the newspapers, a good many people are anxious or curious to hear my report and what I have to advise.

It is gratifying to be able to report that the authorities state that these talks have been of great assistance to them in the work of suppressing the disease.

Your telegraphic instructions to proceed to High Point, N. C., upon completion of my duties at Winston were received on the afternoon of January 30. I left at 5 p. m. and arrived at High Point the same evening. Here I had an interview with the mayor and several local physicians, who gave me the following account of the situation:

For several months past an eruptive disease, diagnosed as chicken pox, had been prevailing. As the cases had been very mild and no deaths had occurred nothing had been done for its suppression. Within the past two weeks, however, the cases had become more numerous and of a severer type. Isolation of the cases in their own homes had been ordered and vaccination urged. Here, as elsewhere, there were many people who refused to believe that the cases were smallpox or that there was any necessity for vaccination.

Quite a number of the employees of the various furniture factories (the chief industry of the place) had closed their houses and gone into the country to avoid being vaccinated. Under these circumstances the local authorities desired to have an authoritative diagnosis of the disease and advice before taking further steps.

On the morning after my arrival, accompanied by the mayor and some of the local physicians, I visited a number of the cases and saw 6 or 8 cases of smallpox in varying stages of eruption. All the patients with smallpox that I saw were negroes, and the disease was typical. One confluent case was in the fourth day of the eruption. I made several photographs of the best-marked cases. I was informed that there were 15 cases in all in the city, but it was not considered necessary for me to see each of them. I was shown 4 or 5 white patients who were said to have had recently an eruptive disease. When I saw them the eruption had disappeared, and from the history given me I was unable to make a diagnosis. I do not think that these patients had smallpox. After visiting the cases I addressed a mass meeting of the citizens, discussed the situation with them, and gave the usual advice. I left High Point at noon February 1. As I passed through Greensboro I saw the mayor of that city, who informed me that the authorities had the situation well in hand. He said that there were 29 cases in the hospital; that about 90 per cent of the population had been successfully vaccinated, and he thought the trouble about over. He was anxious that I stop and look over the situation, but this I was unable to do.

Respectfully.

C. P. Wertenbaker,
Passed Assistant Surgeon, U. S. M. H. S.

REPORT ON SMALLPOX SITUATION IN MARTINSVILLE, VA., AND GREENSBORO AND WINSTON, N. C.

Wilmington, N. C., *February 11, 1900.*

Sir: In obedience to your telegraphic instructions of February 7, 1900, to proceed to Martinsville, Va., for the purpose of diagnosing a supposed case of smallpox, I have the honor to report that I left Wilmington the next morning. Owing to lack of train connections, I had to delay several hours in Greensboro and spend the night at Winston, N. C. I arrived at Martinsville at 10.30 on the morning of February 9, and was met at the depot by Dr. Lee, the city health officer, who gave me the following information:

A young white man, by name Shelton, whose parents reside in Martinsville, arrived at Martinsville on February 3, 1900, after an absence of three weeks, which had been spent in extensive wanderings in Virginia and West Virginia. The young man was sick on arrival, and stated that he had a chill on February 1, and other symptoms of smallpox. Dr. Lee saw him for the first time on the night of February 4, when he found the patient with an eruption that had broken out that day. Dr. Lee diagnosed the case as mild smallpox and on the following morning removed him to an isolated house beyond the city limits, and it was here that I saw him. The patient had smallpox in a mild form, the disease having been much modified by a vaccination that had been made several years ago. He was in the fifth day of the eruption, which was typical of modified smallpox. The eruption was rapidly disappearing, there being only a few small pustules on face and chest, and might have been mistaken for acne on superficial examination. A number of people were exposed to the case before the appearance of the eruption. I advised that they be vaccinated and kept under observation.

At the request of the mayor I addressed a mass meeting of the citizens, and detailed the situation and gave them the usual advice. I also wrote the clerk of the council, at his request, a statement of the conditions, as I found them, for publication.

I was gratified to find, on my arrival at Martinsville, that the Bureau had already supplied the authorities with copies of the Service précis and plans of organization for the suppression of smallpox. I trust that this practice will continue, as these pamphlets are of great service and enable the authorities to commence systematic work at once. I left Martinsville on the afternoon of the 9th instant, returning via Danville, Va., where I stopped between trains. I was informed that there had been no smallpox in Danville since the outbreak there last summer, when it was quickly suppressed. I heard numerous expressions of gratitude to the Service for the assistance rendered at that time. I arrived at Greensboro, N. C., the same evening, and had to remain over until the following afternoon on account of lack of train connections. The situation in Greensboro is steadily improving. Three new cases had just made their appearance among quarantined suspects, but none had appeared in the city. The authorities seem to have the situation well in hand, and the epidemic will doubtless soon be a thing of the past.

At Winston I was informed that no new cases had appeared, and that the case I saw at my former visit on January 30, 1900, was recovering. I learned that vaccination had been proceeding in the city, but that probably one-third of the population was not vaccinated, owing to the large number of vaccination exemptions given by the local physicians. The local authorities say that they are much hampered in their vaccination work by these exemptions. There are a number of tobacco factories in Winston, and if smallpox breaks out among the unvaccinated employees it is liable to spread rapidly. I rejoined my station on February 10, 1900.

Respectfully,

C. P. WERTENBAKER,
Passed Assistant Surgeon, U. S. M. H. S.

OFFICE OF MEDICAL OFFICER IN COMMAND M. H. S.,
Baltimore, Md., March 5, 1900.

SIR: I have the honor to transmit herewith a report of the results of my consultation with the health officials of Buckhannon and county of Upshur, W. Va., and my examination of the suspected cases of smallpox in that vicinity; also of my investigation of the situation, supposedly of a similar nature, existing at Weston, W. Va., in compliance with your telegrams dated February 26 and March 1, 1900.

On the morning following my arrival at Buckhannon it was arranged, after consultation with the town and county health officers, for me to examine a number of the more recently developed cases of the eruptive fevers then prevailing in the vicinity and shortly thereafter report the result of the investigation to the board of health of the town and county and advise necessary precautionary measures for preventing the spread of the disease. Among the number of cases examined were two well-defined cases of smallpox, with eruption, confluent, on the face and parts of the limbs and trunk. Some cases of varioloid were also found, one of which was of very recent development and easily recognized.

My opinion as to the existence of smallpox in Buckhannon was freely expressed to the board of health of the county, and they were fully advised to isolate, vaccinate, and disinfect, in accordance with the quarantine regulations of the United States Marine-Hospital Service.

Printed Service instructions for isolation and disinfection in the management of smallpox infection were left with members of the board of health and local physicians.

Every case of the eruptive disease then prevailing in Buckhannon could be associated in some connection with the original focus of infection at one of the hotels in the town. The number of cases reported in the corporate limits of Buckhannon was 17. The number of cases reported then in Upshur County was 35; deaths in town, 1.

At Weston, W. Va., there were no cases of eruptive fevers in the corporate limits. In the county of Lewis there were reported 25 cases, with no deaths.

Here at Weston and all over Lewis county the physicians were not divided in their opinions as to the nature of the eruptive disease, but unanimously pronounced the disease smallpox.

I advised the board of health at Weston of the measures advocated by the Service for preventing the introduction and spread of smallpox, and left Service publications with them, giving full information relative to isolation of cases and personal and general disinfection after termination of the disease.

Respectfully,

T. B. PERRY,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

REPORT ON THE SMALLPOX SITUATION IN GEORGIA.

NEW ORLEANS, LA., *March 12, 1900.*

SIR: I have the honor to make the following report of my transactions while on special temporary duty in connection with smallpox in Georgia. I reported for duty to Governor Candler at Atlanta, Ga., March 1, 1900.

The governor desired that I visit all places in the State where any smallpox occurred and confer with authorities in such places, to advise them as to proper measures to be pursued in preventing the spread of the disease. In such places where a difference of opinion existed as to the nature of the disease I was to aid the authorities in reaching a correct diagnosis.

I first ascertained what counties of the State had made a request of the governor for vaccine points, and took this as a guide of the places I should first visit The governor then furnished me with a letter of introduction to the health officials of the various towns and counties. (*a*) At the governor's request I first visited Brunswick, where I met the mayor and health officer of the place. I obtained the following history of the situation:

Since May, 1899, no case of smallpox occurred in the city until December 19, 1899, when a case was discovered in the southern part of the city. The source of infection of the case which occurred in December is not exactly known. Since that time until March 1, 1900, 112 cases have occurred. The number of houses infected was about 20.

At the time of my visit 31 cases were in the smallpox hospital. All the cases occurred in negroes with the exception of 3 whites—2 deaths. The disease is of a mild character.

An ordinance had been passed making vaccination compulsory. This vaccination was done free by the health officer and his assistant at the court-house, where the people had been summoned to appear for this operation. Later, the physicians made a house-to-house inspection and vaccination. In this way about 5,000 vaccinations had been performed. I then went over the situation and observed the methods pursued by Health Officer J. A. Butts.

Two inspectors made irregular inspections of the localities where the disease was thought to be prevailing. One inspector at the time of my visit was sick with the disease and isolated at his home. He was never protected by vaccination, and contracted the disease six weeks after he first began inspections. The other inspector was a former policeman who had just recovered from a mild attack of variola.

Several cases, 3 in number, were reported by the inspector on the day of my visit. The health officer and I then visited these cases, where the disease was diagnosed as smallpox. The patient was ordered to the smallpox hospital, the suspects vaccinated, and not allowed into the house until the residence was fumigated. This fumigation was done by closing the windows and doors, scattering the contents of the room, and placing two pots of burning sulphur (about 5 pounds in a pot) in the house; after twelve hours the pots were removed and permission given to reoccupy the house.

I visited the hospital, located about 1 mile from the city. This was composed of tents erected over the open ground, and one small frame building used for the more severe cases. One guard, 1 nurse, 1 cook, and 1 helper composed the personnel of the hospital.

* * * * * * *

I advised, with the health officer and the mayor, that a thorough and systematic house-to-house inspection and vaccination be done; the erection of a hospital for isolation of the sick, and the employment of a crew of disinfectors. I explained in detail the methods to be pursued in the management of the hospital; discharge of the recovered patients; the proper disinfection of a house, and the care of suspects. Since the establishment of a suspect camp would entail considerable expense, I advised the following: Vaccinate the suspects; place the suspects in a clean disinfected house distant from populous portion of the city; give suspects a bichloride bath; change clothing for new clothes or disinfected clothing; throw their clothing into a 1–500 bichloride of mercury solution; after their home is disinfected allow them to return, and inspect daily for fourteen full days. I also advised the redisinfection of the 20 houses previously fumigated in the method described above.

The officials were exceedingly pleased to have me advise with them, and said they would begin work in the manner I had outlined to them. I then visited Jesup. I learned that neither the ordinary nor the commissioners would take hold of the smallpox situation, as P. A. Surg. C. P. Wertenbaker advised the authorities last January.

Drs. Tuten and Drawdy then took the situation in hand, disinfected the houses in the town where the disease occurred, and performed 400 vaccinations. The last case was discharged February 14, 1900. Two houses 15 miles from Jesup, in country, still remain to be disinfected. At Blackshear I found Dr. Williams in charge of health affairs. Dr. Brunner had visited this place, diagnosed the disease, and advised as to the proper measures to be pursued. There had been 40 cases in all; no deaths, 4 in hospital recovered and ready for discharge, 1,100 vaccinations had been performed, and the county reported free of the disease.

At Waycross Dr. Izler gave me the following report: The first case of variola occurred February 11, 1900. Infection was traced to Brunswick, and the cases afterwards treated were traced to other known sources of infection. Three thousand nine hundred and sixty vaccinations had been performed. On March 6 the report was the following: Total number of cases of variola, 16; total number of cases of varioloid, 5; total number of cases treated in smallpox hospital, 11; total number of cases treated, isolated in homes, 10; total number of exposures confined in detention hospital, 20. Number of cases developed in detention hospital, 2; number of cases developed in detention at houses, 3; number of cases in whites, 9; number of cases in colored, 11; number of cases under treatment, none; number of cases of pemphigus contagious recovered, 3; number of cases of varicella, 25.

I was about to proceed to Albany when I learned that the schools in Tifton were closed on account of supposed cases of smallpox. I reached there March 6, 1900, and met the city physician, Dr. Hunter, and, with him and the attending physician, visited these cases. I diagnosed the cases as smallpox, and that night met the board of health and mayor and advised with them as to the methods to be pursued. The infection was traced to a man coming from Cordele. This man soon developed an eruption after his arrival, and his wife then took the disease. All the cases could be traced to this one. This first patient kept a store, and the negroes who were discovered to have the disease could trace their infection to this store. I saw 5 white people in 2 families with the disease.

Every suggestion as outlined was followed.

I then proceeded to Cordele, but the following day received a telegram to return to Tifton to advise with commissioners of the county. I met but one of the commissioners, and finally wrote an outline of the usual methods. I also directed the disinfection of 1 house and outlined the methods for a very thorough disinfection of the store and residence of the first case.

At Cordele there was some difference of opinion between the physicians as to the diagnosis of the prevailing disease, some contending it was smallpox and others that it was impetigo contagiosa.

I then visited the smallpox hospital, where I saw 13 cases of smallpox; then I visited several houses where whites were sick, and diagnosed the disease as smallpox. At 8 p. m. the evening of March 7, 1900, I met the board of health, told them my diagnosis and differentiated it for the physicians.

I advised the removal of the hospital to a place more distant, at least 2,000 feet distant from any residence, and then gave other usual advice. I dwelt particularly on the subject of disinfection.

Respectfully,

R. H. VON EZDORF,
Assistant Surgeon, U. S. M. H. S.

[Inclosure.]

ATLANTA, GA., *March 2, 1900.*

To the Ordinaries of Georgia:

This will introduce Dr. R. H. von Ezdorf, assistant surgeon, United States Marine-Hospital Service, an expert in the treatment of smallpox, who has heen detailed, at my request, by the Surgeon-General of the United States Marine-Hospital Service, to aid the ordinaries and county commissioners in those counties in which smallpox has appeared in treating the disease and arresting its spread.

Dr. von Ezdorf understands his business, and if his instructions are followed by county and city authorities the spread of the disease will be stopped and much suffering, anxiety, and expense will be avoided. I sincerely trust that the ordinaries and county commissioners of the State and the municipal authorities of the towns and cities may avail themselves of his skill, and thus speedily arrest the progress of the loathsome disease which has invaded so many of the counties of the State.

Respectfully,

A. D. CANDLER,
Governor.

VACCINATION.

In addition to the foregoing report, Dr. Von Ezdorf submits the following remarks on the value of vaccination:

A plea for vaccination and revaccination.

[By R. H. von Ezdorf, assistant surgeon, United States Marine-Hospital Service.]

NEW ORLEANS, LA., *March 23, 1900.*

While detailed by the Service, at the request of Governor Candler, of Georgia, as sanitary adviser in connection with measures to be taken to arrest the spread of smallpox in the State of Georgia, and authorized to visit such places in Georgia as may be deemed necessary by the governor, I had occasion to visit several places in a ten days' tour and meet a number of people interested in this matter.

A number of queries were propounded regarding the immunity or protection by vaccination, and also the necessity of revaccination.

It is my purpose in this note to show how I briefly answered these questions to the laity, and not go into the question of the history of vaccination and the results obtained by measures known to all sanitarians.

First, I admitted that vaccine was a poison introduced into the body, but one of modified smallpox poison, which, when introduced into the human system, manifests itself by a single local eruption, at the point of inoculation, but which, when this process continued in a regular course, gave the individual full protection.

It may not be amiss to give a bare pathological histological description of this normal process of vaccinia. After vaccination the cells increase and swell, some bursting and forming vacuoles, so called, and the fluid serum is increased between the cells. This process begins in a center and proceeds excentrically, drying up in the center, and when reaching the height of development in nine days shows a peripheral series of vesicles, formed in the manner described as vacuoles plus the fluid serum with the exception, that it, the process, is greatly augmented as it grows outward to a limited periphery. A red inflammatory zone forms the halo about this row of vesicles and the process of drying begins to be completed in three weeks from the day of vaccination. During this process a gradual absorption into the human body of the peculiar toxin formed by the virus in question takes place, and at the end of nine days the body receives its full quota of protection against the invasion of the smallpox germ.[a]

I am indebted for the idea, about to be noted, to the book written by Dr. Carey, A. M., M. D., F. R. C. P., London, in his work on vaccination, 1897.

In order to demonstrate this matter of protection, I used as an example a ladder having nine rounds. Each round was to represent twenty-four hours of vaccination period, and a complete protection by vaccination is reached by climbing this ladder, when at the ninth round or ninth day the full protection is reached. The reason for giving this demonstration was that the frequent question put to me was, So-and-so was vaccinated a year or six months ago and took smallpox. "I know he had a good sore arm," some said, "had a greatly swollen arm," or "was a great take."

Again, I was questioned about several persons, one I had seen myself, who had been vaccinated two years ago and again this year, and the doctor wished to know why this second vaccination formed a vesicle in twenty-four hours and reached its height in forty-eight hours and began to dry up—"just like a take," he said.

I answered these questions thus: The individual who had a greatly swollen arm, etc., was, during the protection process, interrupted at the fifth or sixth round of protection by a septic infection. His arm became swollen and sore and inflamed as a result of this later infection. He has not reached the "ninth round" of protection, and has only five, six, or seven rounds of protection, as the case might be. Now let him be exposed to smallpox; he will only so far modify the disease as five, six, or seven rounds of protection will give. The more rounds of protection he has the less severe the disease. In all, the disease remains the same, and from a sanitary point of view the mildest forms are the most dangerous, as they are not early recognized, and thereby spread the infection. Vaccinate these same individuals with five, six, or seven rounds of protection, and the result is a "take" which reaches its height of vesiculation in four, three, and two days, respectively, in which time the individual with the several rounds of protection begins climbing the ladder from that point until he reaches the ninth or top round.

In answer to "Why revaccinate after one has been successfully vaccinated?" my answer was that the protection received may last a lifetime or only a year or two, when the individual, according to individual susceptibility, may gradually go down the ladder. He may go as far as the seventh round or the third or first round. Therefore, to keep up the full quota of protection, revaccinate, and he begins to climb the ladder again from the round to which he had retrogressed.

I also advised in many instances to vaccinate a second time four days after the first vaccination, to prove that the person is properly protected. It only further demonstrates that the first vaccination gave four rounds of protection and the second vaccination reaches its height of development the same time as the first, having only five rounds to go. This is known as Bryce's test.

It may be worth noting that vaccine matter may lose some of its protective units by age, so that one vaccinated by old vaccine matter may be carried only a few rounds up the ladder; and if revaccinated several times by this old vaccine, the individual may eventually reach the height of protection.

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[a] To the farmers I explained how anthrax, so fatal to cattle and sheep, when inoculated into mice, and then when the cattle are inoculated from the mouse, manifests itself by a local sore and protects such animal from anthrax, otherwise so fatal to them. Thus vaccine is smallpox modified by the cow, just as the anthrax virus from the mouse is modified anthrax; in the first case it protects man and in the latter the animal against invasion of the respective diseases. * * *

This explains why some cases have developed smallpox, varioloid, even after a "good (?)" recent vaccination.

I was asked "Why vaccinate the suspect?" Because you may catch him within the third or fourth day of his incubation of smallpox; you vaccinate, and in nine days he has full protection, just the time (accepting twelve days as the period of incubation of the disease, though it often is fourteen days) when the disease should manifest itself. It may be too late and the disease develop in mild form. The case then has probably reached seven rounds of protection when the incubation period is at its height; if only three or four rounds have been reached, no modification of the disease may occur. This is known as Marson's law.

I claimed that glicerinized virus as used at the present day would not cause any "great swollen arms," and I was requested to state how to vaccinate. My armamentarium is a bottle of alcohol, knife, virus, and matches. I wash the arm with water, rubbing with a clean, freshly ironed towel, then rub and apply alcohol to the part freely. I dip the blade of the knife in alcohol, apply a light with a match to burn off the alcohol, repeat this process, then scarify the arm with the sterilized knife (do not draw blood) and apply the vaccine.

In conclusion, I will say vaccinate to obtain the height of protection, and if once or more times successfully vaccinated, revaccinate to be sure that you have reached the height of the ladder and are fully protected.

Respectfully,

R. H. von Ezdorf,
Assistant Surgeon, U. S. M. H. S., in Temporary Charge.

SMALLPOX IN BATH COUNTY, VA.

South Atlantic Quarantine Station,
Via Inverness, Ga., March 16, 1900.

Sir: Confirming my telegram of the 13th instant, I have the honor to inform you that in accordance with Bureau telegram of the 13th instant, I proceeded to Millboro, Va., for the purpose of investigating the disease prevailing there. Orders having been issued to sell no tickets to Millboro I went to Goshen, thence on a hand car over the mountains to a quarantine guard where another section boss kindly took me into town. With Dr. Nickells, who is acting as quarantine officer, I examined 8 of the 12 known cases and at least 7 are smallpox, 1 case being confluent. The eighth case had been a mild one with one or two eruptive points, having no pits. The patient, a little girl, had been vaccinated during the eruption, and when I saw the arm (ninth day of vaccination) there was certainly some evidence of result somewhat similar to the fourth-day appearance. This case was held by some to prove the absence of smallpox in the village. Millboro is a small village of about 150 people in the mountains of Bath County, is a very healthy, cleanly place, and a noted summer resort. There are at present 4 known cases of infection, and these people are quarantined by placing them on honor and by guards appointed by the local authorities. All cases are among the better class of whites, and no negroes have been attacked.

The employees of the Chesapeake and Ohio Railroad have all been vaccinated, but the county supervisors have declined to exercise the authority given them by the State law to order compulsory vaccination. This being the case, Dr. Nickells, who is one of the best known physicians in the State, has adopted the expedient of putting a guard around the village to prevent anyone from coming in who will not be vaccinated. The railroad has been requested not to allow passengers or freight to arrive or depart without permission from him; the schools are closed, and every endeavor is being made to induce the inhabitants to be vaccinated. It is thought the interference with trade will assist in the effort. The origin of this outbreak is as follows: During the Christmas holidays a visitor from western North Carolina arrived at Carters Creek, a near-by mountain settlement. He had an eruptive disease. The Millboro school-teacher went there to a dance and about two weeks after had a case of the present disease. Before his eruption disappeared he again taught school, and later some of his pupils were attacked. So far as I could ascertain, none of those attacked had been previously vaccinated.

I was informed that the secretary of the State board of health, Dr. Paulus Irving, was in Millboro the night before my arrival and pronounced the disease smallpox. I wish to express my appreciation of the courtesy extended the Service through me by the people of Millboro regardless of their opinions of the nature of the disease.

Respectfully,

Hugh S. Cumming,
Passed Assistant Surgeon, U. S. M. H. S.

SMALLPOX AT FOLSOM AND CATSKILL, N. MEX.

FORT STANTON, N. MEX., *March 21, 1900.*

SIR: I have the honor to report that in accordance with Bureau letter of February 27, 1900 (G. and J. H. W.), directing me to proceed to Folsom and Catskill, N. Mex., relative to smallpox, I went to Trinidad, Colo., and consulted with the city and county health officers. Both informed me that they had been misinformed in the first instance as to the number of cases at Folsom. It had been written to these gentlemen that there were 60 cases in Folsom, which proved to be false, there being only 8 at that particular time; therefore, the regulations which had been made to quarantine Folsom were revoked. These gentlemen inform me that the young physician in charge at Folsom is perfectly reliable and efficient and that he keeps them well informed.

There have been 2 cases of smallpox at Catskill. This is only a small lumber town, 27 miles from Trinidad. There are no known cases there now.

The city and county health officers stated that they did not believe the conditions justified any interference. Trinidad being the town chiefly interested, I thought it useless to go to Catskill and Folsom, as Folsom has only 4 cases, and there are none at Catskill. I requested these officers to notify me by wire in case there should be any further trouble.

In this connection I inclose a copy of a letter from the secrerary of the State board of health of Colorado, which will further explain the situation.

Respectfully,

J. O. COBB,
Passed Assistant Surgeon, U. S. M. H. S.

[Inclosure.]

COLORADO STATE BOARD OF HEALTH, *March 13, 1900.*

SIR: Yours of March 8 received. I am of the opinion that you will find matters both at Folsom and Catskill in good condition at present, but there were numerous complaints by the Colorado health officers near the New Mexico line some two months ago that there was great carelessness at both these points.

The regulations of the Colorado State board of health require immediate report of every case of smallpox, giving the source of infection in each case. Trinidad has had several infections from New Mexico, the details of which I will be very glad to give you when you come to Denver, or if you go to Trinidad Dr. A. B. Harbison, a member of our board, or Dr. D. F. Dayton, health officer of Trinidad, can give you the desired information.

Denver had an importation from Folsom in January, which resulted in 2 subsequent cases. The reason why the complaint was made to the Marine-Hospital Service was that for years there has been constant complaint of the carelessness of New Mexico's health authorities, and the majority of our importations of smallpox has been from this source.

We are perfectly willing to have Colorado's health matters investigated, so that if there be carelessness of the local health officers along the border line in our State, such carelessness may be brought to our attention and rectified; but as I had failed, after making repeated requests to the governor of New Mexico and the Territorial health board, to secure a remedy to the difficulty, the board directed me to lay the matter before the Marine-Hospital Service. I beg to assure you that I will give you all possible aid in order that the absolute facts may be obtained.

Hoping soon to meet you, I am,

Respectfully,

G. E. TYLER,
Secretary.

J. O. COBB, M. D.,
Passed Assistant Surgeon, U. S. M. H. S., Fort Stanton, N. Mex.

SMALLPOX AT CHARLESTOWN, WEST VA.

WASHINGTON, D. C., *June 12, 1900.*

SIR: I have the honor to report that I visited Charlestown, W. Va., yesterday in accordance with your order; saw and diagnosed 8 or 10 cases of smallpox. Most of the cases seen were very mild; 2 were quite severe, 1 of them being almost confluent. I am informed by the physicians in Charlestown that the disease has existed in that place for six or eight weeks, and Dr. Neill, the city physician, estimates that there have been, since the beginning, approximately 40 cases.

A meeting of the council and the physicians of the town was called at 8 p. m., and by invitation I addressed them, giving a description of the methods to be adopted in suppressing the disease. Several of the mild cases were on the street as late as last night. * * *

A temporary hospital will be erected to-day in the outskirts of the town and the sick and suspects removed to the hospital and adjacent detention camp.

House-to-house inspection and vaccination were begun to-day.

The mayor and health officer request that Assistant Surgeon Currie be returned to Charlestown in a couple of days to demonstrate practically the method of disinfection. I would recommend that this request be granted.

I have returned to Washington this afternoon and resume my regular duties.

Respectfully,

P. M. Carrington,
Surgeon, U. S. M. H. S.

A detention camp and a hospital were established at this point by the local board of health and the services of a medical officer were given to them at their request, and a brief report from this officer is subjoined:

Charlestown, W. Va., *June 19, 1900.*

Sir: I have the honor to report the following facts in connection with the smallpox situation in this city:

First. The hearing before Judge Faulkner on the question of a restraining injunction has been indefinitely postponed.

Second. I now have the camp, consisting of 12 acres, inclosed with an 8-strand barbed-wire fence, and have finished the erection of 2 smallpox hospitals, 2 detention buildings, 1 mess hall, 1 guardhouse, and 1 bath house.

The various sections of the plant are roped off in what I consider a satisfactory manner. The camp is lighted by 3 arc lights and has telephonic connection. The necessary work would have been completed forty-eight hours earlier but for an unusual downfall of rain, lasting that length of time, during which it was impossible to prevail upon the men to work. I now have 14 patients in the smallpox hospital and the camp will be open for the reception of suspects at sunrise to-morrow.

Respectfully,

W. Chester Billings,
Assistant Surgeon, U. S. M. H. S.

Camp Washington,
Charlestown, W. Va., June 22, 1900.

Sir: I have the honor to report that at the present time the personnel within the limits of this camp is as follows: Medical officer, 1; captain of guard, 1; sergeant of guard, 1; commissary of subsistence, 1; laborer, 1; guards, 14; patients with smallpox, 30; suspects, 53; total, 102.

Respectfully,

W. Chester Billings,
Assistant Surgeon, U. S. M. H. S.

This smallpox epidemic was brought to a conclusion in a few weeks under the judicious care and management of Assistant Surgeon Billings, who won the universal approbation and esteem of the community.

SMALLPOX IN ALASKA.

The Bureau early in July received information through a letter addressed by Lieut. D. H. Jarvis, Revenue-Cutter Service, acting special agent of the Treasury Department, to the honorable the Secretary of the Treasury, which letter is appended hereto, to the effect that smallpox had broken out in virulent form in the mining camp at Cape Nome, and that measures had been undertaken by Lieutenant Jarvis as acting special agent of the Treasury Department for the suppression of the disease pending the arrival of officers for this purpose.

OFFICERS DETAILED TO CAPE NOME AND DUTCH HARBOR.

The Bureau on July 13, 1900, detailed from San Francisco for this duty Asst. Surg. Bayliss Earle, and subsequently directed Asst. Surg. B. J. Lloyd on July 28, 1900, to report to him as assistant quarantine officer. There was already on duty at Dutch Harbor, Alaska, for purposes of extending relief to sick and disabled seamen, a medical officer of the Service, Asst. Surg. Dunlop Moore, and in order to provide for contingencies which might arise requiring the services of a quarantine officer at that point Asst. Surg. Carrol Fox was detailed on July 28, 1900, to report to Dr. Moore and perform such quarantine duties as might be demanded at Dutch Harbor. The correspondence, consisting of a letter from the honorable Secretary of the Treasury to the President and the report of the Surgeon-General to the Secretary, regarding the necessity for this work, as well as the Department circular formulated under the law of February 15, 1893, for governing these stations, is appended hereto, as is also the report of the officers engaged in this work.

OFFICE OF SPECIAL AGENT TREASURY DEPARTMENT,
Nome, Alaska, June 20, 1900.

SIR: I respectfully report that the steamer *Ohio* arrived at this port on the 14th instant with 700 passengers and 2 well-developed cases of smallpox on board. Learning by chance that the vessel had smallpox on board at Seattle, I was able to board her with the local health officer as she came to anchor, but not before some 15 of her passengers were able to escape in the swarm of boats that surrounded the vessel. There being absolutely no organization, stability, or force to the local government, and the question being so vital and momentous to the situation here, I deemed it my duty, as the only representative of the Department comprehending quarantine and its enforcement, to assume the responsibility and take immediate action to prevent the disease reaching the shore. After carefully considering the situation I selected Egg Island, near St. Michael Harbor, as the most available and desirable place in this region for a quarantine station. It is far enough from the shore to preclude the possibility of passengers escaping, has a comparatively safe anchorage, and can almost always be reached from St. Michael. No other place in this vicinity that is not now filled with people possesses these advantages. The *Ohio* was ordered to Egg Island on the night of the 14th instant, and arrived on the 15th. I proceeded by another vessel the same day, and with the aid of First Lieut. P. M. Cochran, U. S. Army, commanding Fort St. Michael, a camp was built on the island, to which the 2 smallpox patients were removed on the night of the 15th instant. The vessel was then detained in quarantine off the island until such time as it was considered safe for her passengers to be landed. For the station on the island, I engaged Dr. F. N. C. Jeraula, a nurse, and cook, and instituted at this point a proper boating and inspection service for all arriving vessels, engaging Dr. S. J. Cale for that purpose.

On account of the conditions here, and the total lack of facility, it has been impossible as yet to arrange for the removal of the remainder of the passengers from the vessel, but upon the arrival of Gen. George M. Randall, commanding Department of Alaska, an effort will be made to accomplish this. In the meantime all the passengers of the *Ohio* have been vaccinated, and so far I have had no reports of new cases among them.

On the 16th instant the steamer *Santa Anna* arrived with 350 passengers and 1 case of smallpox. She also was placed in quarantine at Egg Harbor, and her smallpox patient removed to the camp on shore.

Since that time the arriving vessels have been found free from infectious diseases, and their passengers have been allowed to land. On the 16th instant 2 cases of varioloid were found on shore, at the mouth of the Nome River, 4 miles from this place. The cabin in which they were was immediately quarantined and steps taken to see that no communication was had with it. The persons affected arrived at this port on the steamer *Oregon*, of Seattle, and were landed from that vessel on the 13th instant, without any report by the master and before any knowledge of the danger of such a disease coming here had reached me. The master of the *Oregon* claims that the cases were reported by the ship's surgeon as being a mild form of chicken pox. The *Oregon's* passengers were all on shore and the vessel practically discharged before the cases were discovered. No new cases have been discovered on shore since, but in view of the above circumstances an outbreak may occur at any time. At present there must be fully 12,000 people here, and proper accommodation for not more than one-quarter of that number. The people are all in continual state of unrest and excitement, and should the disease become epidemic it would be a calamity, and most likely spread through this whole northern country, with no means of care or prevention. I do not wish to cause unnecessary alarm, but can not urge too strongly a proper and sufficient inspection of all passengers leaving for this point, the stationing of proper medical officers here, and the shipment of sufficient vaccine matter.

The expenses attendant upon this matter will be considerable, and I respectfully request the Department's approval of my action.

Very respectfully,
D. H. Jarvis,
First Lieutenant, Revenue-Cutter Service,
Acting Special Agent.

The Secretary of the Treasury,
Washington, D. C.

[Telegram.]

Seattle, Wash., *June 30, 1900.*

Steamer *Ohio*, from San Francisco and Seattle, arrived June 14 with 2 cases of smallpox. Vessel placed in quarantine at Egg Island, near St. Michael, and the most desirable place. Established camp on Egg Island and took patients ashore there. Steamer *Santa Anna* arrived 16th with 1 case, and will be disposed of in same way. It is reported steamer *Oregon* landed 1 case here without reporting. It will be investigated. Situation deemed very serious in view of chaotic condition of this place. Suggest inspection of passengers before sailing from Seattle and San Francisco, and a proper quarantine officer here if possible. In absence of proper officers and total lack of government here, I assumed responsibility and have incurred necessary expenses. Request approval of action and expenses upon arrival. General Randall will request his cooperation.

Jarvis, *Acting Special Agent.*

The Secretary of the Treasury,
Washington, D. C.

[Indorsement.]

Treasury Department, *July 2, 1900.*

Respectfully referred to the Surgeon-General of the Marine-Hospital Service, with the information that Lieutenant Jarvis has been advised by wire, through the office of the collector of customs at Port Townsend, Wash., that his action is approved; that the subject will be referred to the Surgeon-General of the Marine-Hospital Service, and that a separate account should be submitted for expenses incurred by him.

H. A. Taylor, *Assistant Secretary.*

[Telegram.]

Nome, Alaska, *June 29, 1900.* (Via San Francisco, Cal., July 11.)

Ten cases smallpox at this port in last three days. One death to-day. All were passengers from steamship *Oregon*. *Oregon* sailed for Seattle. Have established camp and removed cases there. Urge proper officers and sufficient vaccine matter be sent. Fifteen thousand people in immediate vicinity. Absolutely no civil authority here, and I have had to take measures to isolate and prevent spread of disease. Steamers *Ohio* and *Santa Anna* released from quarantine. Passengers all vaccinated and vessels cleaned as well as possible. Patients on Egg Island improving. No new cases arrived by vessel.

D. H. Jarvis, *Acting Special Agent.*

Secretary Treasury, *Washington, D. C.*

[Telegram.]

Nome, Alaska, *July 2, 1900.* (Via Port Townsend, Wash., July 11.)

Twenty cases smallpox to date. Measures taken to isolate and care for all cases, but facilities are poor. Need medical officers to charge.

Jarvis, *Acting Special Agent.*

Secretary Treasury, *Washington, D. C.*

[Telegram.]

WASHINGTON, *July 11, 1900.*

Take first available steamer either from San Francisco or Seattle for Cape Nome, confer with Lieutenant Jarvis, Revenue-Cutter Service, acting special agent of Treasury Department, who has established a quarantine. Arrange with him and with General Randall for maintaining maritime quarantine. If there is any trouble act under advice of Lieutenant Jarvis. Before going confer with Kinyoun as to quantity sulphur and bichloride and number of Dutch ovens or pots for fumigation, order same and ship speediest practicable route, transmitting bills here. Have sent 1,000 vaccine points to Captain Roberts, cutter *Manning*, at Nome. Will mail from here 5,000 vaccinations unless you can purchase good virus in San Francisco, in which case purchase and take with you. If possible extend shore aid to the extent of vaccinations. If more help absolutely required, confer with Jarvis. Keep correct account of expenditures and bills. Call on Surgeons Gassaway and Kinyoun for necessary blanks and stationery. Wire Bureau any further needs, and when you go. With approval Secretary of Treasury.

WYMAN.

Assistant Surgeon EARLE.
(Through commanding officer Marine Hospital, San Francisco, Cal.)

ESTABLISHMENT OF NATIONAL QUARANTINE STATIONS IN ALASKA.

TREASURY DEPARTMENT, *Washington, July 24, 1900.*

SIR: I inclose herewith a memorandum from the Surgeon-General of the Marine-Hospital Service, together with a circular providing for the establishment of national quarantine stations at Dutch Harbor and Cape Nome, Alaska.

The memorandum of the Surgeon-General explains the necessity of the circular, and I have to request that, after signature, it be mailed direct to the Surgeon-General of the Marine-Hospital Service.

Respectfully,

L. J. GAGE, *Secretary.*

The PRESIDENT.

[Inclosure.]

TREASURY DEPARTMENT,
OFFICE OF THE SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, July 24, 1900.

MEMORANDUM FOR THE SECRETARY OF THE TREASURY.

Lieutenant Jarvis has already established a provisional quarantine under Treasury orders at Cape Nome. Large quantities of vaccine virus have been sent to him by the Bureau, and Assistant Surgeon Earle has probably reached Cape Nome by this time, to take charge of quarantine measures. An officer has also been sent to Dutch Harbor, and two additional medical officers of the Marine-Hospital Service are en route, one to Cape Nome and the other to Dutch Harbor.

The object of this circular is to give a legal status to the quarantine stations which must be established at each place. At Cape Nome the quarantine station is of course intended to protect the settlement from vessels which may arrive from the States if they have smallpox on board; but the second part of the circular relating to the Interstate Quarantine Regulations will enable the quarantine officer to take precautions with regard to passengers leaving Cape Nome when the return exodus begins. The danger to be met is that of crowded vessels returning being infected with smallpox or other contagious disease.

Some of these vessels after leaving Cape Nome may put in at Dutch Harbor, and if there is contagion among the passengers it will be necessary to have some legal quarantine surveillance in order to control the passengers and to prevent smallpox being carried by them ashore at Dutch Harbor, where, I understand, there are at present about 7,000 people.

To comply with the law of 1893 the President's signature is necessary to the order relating to the execution of these regulations and detail of officers, and I have to request that this circular be forwarded for this purpose.

Respectfully,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

DEPARTMENT CIRCULAR.

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
Washington, D. C., July 28, 1900.

To officers of the Treasury Department, State and local quarantine officers, consular officers, masters and owners of steam vessels, and others concerned:

Attention is hereby called to the act of Congress approved February 15, 1893, entitled "An act granting additional powers to and imposing additional duties upon the Marine-Hospital Service," and to the portion of section 3 of said act, which reads as follows:

"And at such ports and places within the United States as have no quarantine regulations under State or municipal authority, where such regulations are, in the opinion of the Secretary of the Treasury, necessary to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, and at such ports and places within the United States where quarantine regulations exist under the authority of the State or municipality which, in the opinion of the Secretary of the Treasury, are not sufficient to prevent the introduction of such diseases into the United States, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, the Secretary of the Treasury shall, if in his judgment it is necessary and proper, make such additional rules and regulations as are necessary to prevent the introduction of such diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, and when said rules and regulations have been made they shall be promulgated by the Secretary of the Treasury and enforced by the sanitary authorities of the States and municipalities, where the State or municipal health authorities will undertake to execute and enforce them; but if the State or municipal authorities shall fail or refuse to enforce said rules and regulations the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary to prevent the introduction or spread of such disease, and may detail or appoint officers for that purpose."

In accordance with the provisions of the aforesaid act of Congress, and it appearing that no quarantine regulations nor provisions for the execution of necessary quarantine measures have been provided by the local or territorial authorities of Cape Nome or Dutch Harbor, Alaska, it is hereby ordered that quarantine stations shall be established for these two ports by the Surgeon-General of the Marine-Hospital Service, under direction of the Secretary of the Treasury, which stations shall be operated under the quarantine regulations of the Treasury Department issued November 13, 1899, with regard to incoming vessels, and in accordance with such other maritime quarantine regulations as may be hereafter promulgated by the Secretary of the Treasury.

It is further ordered, that, with regard to vessels, cargo, or persons, leaving these ports for other ports, and places in the United States the interstate quarantine regulations promulgated by the Secretary of the Treasury under date of September 27, 1894, shall be enforced.

For the execution of the aforementioned regulations the Surgeon-General of the Marine-Hospital Service is hereby authorized to detail such officers as may be required.

L. J. GAGE, *Secretary.*

EXECUTIVE ORDER.

EXECUTIVE MANSION, *July 28, 1900.*

Whereas, there are no State or municipal health authorities to execute and enforce the above-mentioned rules and regulations, it is hereby ordered that they shall be executed and enforced by the Supervising Surgeon-General of the Marine-Hospital Service, under direction of the Secretary of the Treasury, and the necessary officers of said Marine-Hospital Service are hereby detailed for that purpose.

WILLIAM MCKINLEY.

In accordance with the foregoing circular, the following orders were issued:

WASHINGTON, D. C., *July 28, 1900.*

Confer with Foster, and after obtaining materials proceed to Dutch Harbor and give following to Moore: Department circular, approved by President, establishes national quarantine Dutch Harbor, and you, Moore, detailed as quarantine officer in addition to other duties. Return Fox to States at close of season, when you can spare him, by revenue cutter if possible. Besides maritime quarantine circular authorizes enforcement interstate regulations September 27, 1894. If difficulty use discretion, calling on Revenue-Cutter Service for assistance. Acknowledge.

WYMAN.

Assistant Surgeon FOX, *Port Townsend, Wash.*
(Through Foster.)

WASHINGTON, D. C., *July 28, 1900.*

Proceed on *McCulloch.* Inform Earle Treasury circular approved by President authorizes establishment national quarantine for Cape Nome, and he is detailed as quarantine officer. In addition to maritime quarantine circular provides enforcement interstate regulations September 27, 1894. Take copies with you. Inform Earle must use discretion in enforcing on vessels returning to the United States, doing the best he can to prevent outbreak of infection aboard vessels returning and advising with Jarvis. Both of you to return on last cutter which will have orders. Acknowledge.

WYMAN.

Assistant Surgeon LLOYD,
Care Eagleson, Seattle, Wash.

WASHINGTON, D. C., *July 31, 1900.*

In accordance with Treasury circular July 28, Assistant Surgeon Moore and Assistant Surgeon Fox are hereby detailed as quarantine officer and assistant quarantine officer, respectively, at Dutch Harbor in addition to their other duties, and Assistant Surgeon Earle and Assistant Surgeon Lloyd are detailed as quarantine officer and assistant quarantine officer, respectively, for Cape Nome. These details are by authority of the Secretary and the President. Furnish copy of this telegram to each officer.

WYMAN.

Assistant Surgeon FOX and Assistant Surgeon LLOYD,
Marine-Hospital Service, Revenue Steamer McCulloch, Port Townsend, Wash.

SMALLPOX AT CAPE NOME.

WASHINGTON, D. C., *July 27, 1900.*

July 21 mailed 3,000 points for Earle at Cape Nome and 3,000 for Moore at Dutch Harbor. Both packages sent in your care. Wire if received, and turn over the Cape Nome package to Assistant Surgeon Lloyd and Dutch Harbor package to Assistant Surgeon Fox on *McCulloch* and notify Bureau.

WYMAN.

Acting Assistant Surgeon EAGLESON, *Seattle, Wash.*

WASHINGTON, D. C., *July 28, 1900.*

Make list disinfecting material for Fox to take to Dutch Harbor. Formaldehyd inadvisable. Sulphur, bichloride, and pots for burning sulphur, alcohol, tubs, or barrels and pans required, also bichloride hand pump. Instruct Fox to purchase, in manner prescribed in regulations, necessary material in Seattle, forwarding proposals and bills here, accepting most favorable bids, payable from epidemic fund. If other material needed wire Bureau, and if necessary supply from your stock, rendering account. Acknowledge.

WYMAN.

FOSTER, *Port Townsend Quarantine, Port Townsend, Wash.*

SMALLPOX AT CAPE NOME.

NOME, ALASKA, *July 1, 1900.*

SIR: I respectfully report that there are now at this place 17 cases of smallpox.

The cases are, all but 1, among passengers from the steamer *Oregon*, of and from Seattle, and 1 from the steamer *Ohio*, of New York, which sailed from your port (San Francisco) to Seattle, Wash., and then to this port.

The cases have been removed to a camp outside of the town as soon as possible after discovery, and every means taken to prevent spread, but from the local conditions and lack of facilities and appliances there is great danger.

All vessels departing will be directed to report to the quarantine station at the port of their arrival.

Respectfully,

D. H. JARVIS,
First Lieutenant, R. C. S.,
Acting Special Agent Treasury Department.

INSPECTION SERVICE AT DUTCH HARBOR.

DUTCH HARBOR, ALASKA, *July 16, 1900.*

SIR: I have the honor to inform the Bureau that on my arrival at this station I find the hospital building almost ready for occupancy and of a character suitable for the purposes intended. The hospital supplies are not, however, expected to arrive here much earlier than August 1. It will not, therefore, be practicable to open the hospital for admission of patients for some time to come.

I find that the officers of the Revenue-Cutter Service have, on account of the reported existence of 30 or more cases of smallpox at Nome, instituted an inspection of vessels arriving from the above-named port. As the cutters will shortly sail from this port, I propose, subject to the approval of the Bureau, to continue this inspection. For this purpose it will be necessary to hire a rowboat and one or more oarsmen, in the absence of a launch.

This letter is written hurriedly in order that it may be forwarded by the revenue cutter *Manning*, which is on the point of sailing. Further details will be forwarded to the Bureau as opportunity is offered.

Respectfully,

DUNLOP MOORE,
Assistant Surgeon, U. S. M. H. S.

MARINE-HOSPITAL SERVICE,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Port of Nome, Alaska, August 1, 1900.

SIR: I have the honor to report that passengers arriving on the 28th ultimo via the steamship *Susie* at St. Michael, Alaska, from Dawson, Northwest Territories, reported that when they left Dawson about one week previously there were in that town 6 cases of smallpox, all of which had been quarantined. Lieutenant Jarvis considered this report reliable and together we saw General Randall concerning it. It was then decided to have all vessels coming down the Yukon River inspected at St. Michael. The surgeon of the revenue cutter *Nunivak* was directed to make the inspections and to vaccinate all persons on these vessels who were found to be unprotected against the disease. As he had no virus with which to do this, I sent him 250 tubes.

Respectfully, yours,

BAYLIS H. EARLE,
Assistant Surgeon, M. H. S.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

QUARANTINE ON THE TEXAS-MEXICAN BORDER.

The inspectors and guards placed upon the Rio Grande at Laredo, Eagle Pass, and El Paso, Tex., during the fiscal year 1898 have been continued during the present year.

Provisional detention-camp outfits at the ports of Laredo and Eagle Pass are held in readiness and a house provided at El Paso for the same purpose. While no great number of persons have been detained at these points, there have been both yellow fever and smallpox suspects held from time to time, and a large number of persons (69,388) have been inspected and many vaccinated.

The officers stationed at these points have been in hearty cooperation with the State health officials of Texas.

Camps of Detention.

The Service owns and keeps in a constant state of preparedness for any emergency 3 large detention camps capable of accommodating 1,000 persons each.

Two of these camps were erected as follows: That at Fontainebleau, Miss., in September, 1897; that at Avondale, La. (Camp Hutton), in October, 1897.

The third, Camp Perry, is fully described below:

CAMP PERRY.

In anticipation of any possible outbreak of yellow fever in Florida, and for the purpose of better controlling the camp equipage of the Service located in the Southeast, the Bureau, early in the spring of 1900, entered into negotiations with the Plant System of railways and secured a lease upon the site of old Camp Perry, Fla., just south of St. Marys River, 1 mile north of the railway station of Boulogne. Fla. Side tracks were erected and other complete buildings, consisting of dining rooms capable of seating 1,000 people, kitchens ample to cook for the same number, storerooms, custodian's cottage, railway station, and disinfecting building, wire fencing, etc., were erected and a sufficient amount of outfit for 600 people placed in these buildings so as to be ready for use at a moment's notice. Tentage from Cape Charles, from Waynesville, Ga., and from other points was sent here for storage, where it would be easily accessible in case of need at any point in the Southeast. As may be seen by the instructions issued to Hospital Steward Richardson, who superintended the construction of these buildings, provision was made for a careful system of garbage and sewage removal and of water supply, making it extremely improbable that the plant, whenever used, would ever become infected by typhoid or other similar disease.

This camp was sufficiently advanced toward completion to have been ready for occupancy on August 1, 1900, had occasion demanded, as at that time seemed probable.

June 8, 1900.

Sir: Upon your arrival at the site of old Camp Perry, Fla., in compliance with Bureau orders of the 4th instant, you will give your attention to the following points:

1. It is desired to proceed at once with the erection of certain buildings, sketches of which have been shown to you at the Bureau. You will endeavor to obtain from the Plant System, if possible, a lump-sum proposal for the erection of the buildings in question in accordance with the plans. For the purpose of comparison you will procure proposals for the necessary materials and make estimates for the cost of erection of these buildings by the employment of day labor under your supervision, and if you deem it advisable you may procure proposals from a private contractor for doing the same work, all work in any case to be done under your supervision.

2. You will cause the location of the buildings to be in accordance with the topographical sketch delivered to you while in the Bureau, but you may make such trivial changes in location as may seem necessary to you after a full and careful survey of the site. You may submit reasons, however, for any such changes.

3. You will procure from the construction department of the Plant System an estimate and proposal for the construction of the necessary side track, switches and spur track, and station platform, as indicated in the sketches, and at the same time and from the same parties a separate proposal for the erection of a building figured as a station, baggage room, and disinfecting shed, as shown on these sketches. This estimate also you will accompany with one of your own for the erection of the same building by the purchase of material and employment of labor, as in No. 1.

4. You will procure proposals for material and labor for installing barbed-wire fences for inclosing the reservation.

You will investigate the water supply and obtain proposals for boring an artesian well, with alternate estimates of the cost of sinking an ordinary well or of increasing the flow of the spring at the foot of the hill and pumping the water. In this connection you should carefully measure the height of the ground at the highest point above the level of the St. Marys River, bearing in mind that a 50-foot flow of water from an artesian well is easily obtainable in that neighborhood, though a greater flow is not frequent.

6. You will submit estimates of the quantity and cost of lumber required for the construction of 100 tent floors, 14 feet by 14 feet 6 inches, and in addition thereto of lumber for staging and uprights to which these tents are to be fastened.

7. You will give careful consideration to the subject of sewage disposal and report thereon.

8. You will investigate the facilities for establishing a base of supplies should it be necessary to open a camp. It is believed that Savannah, all things considered, will be the most available base.

So much of these instructions as may be carried out in Savannah before going to Camp Perry should be executed.

By direction of Supervising Surgeon-General:

Respectfully,

J. H. WHITE,
Surgeon.

Hospital Steward S. W. RICHARDSON,
U. S. Marine-Hospital Service, Savannah, Ga.

REPORTS FROM THE NATIONAL QUARANTINE STATIONS.

REEDY ISLAND QUARANTINE; POST-OFFICE ADDRESS, VIA PORT PENN, DEL.

[Report of the medical officer in command, Asst. Surg. T. F. RICHARDSON. Assumed command under official orders of November 24, 1899.]

REEDY ISLAND QUARANTINE, *July 3, 1900.*

SIR: I have the honor to submit the following report of the transactions of this quarantine for the fiscal year 1899–1900:

Vessels inspected	1,117
Vessels disinfected	16
Members of crews inspected	33,070
Passengers inspected	18,517
Vessels whose crews were bathed and their dunnage disinfected	2
Vessel from which steerage baggage was removed and disinfected	1

Respectfully,

T. F. RICHARDSON,
Assistant Surgeon, U. S. M. H. S., in Command.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

REEDY ISLAND QUARANTINE, *July 1, 1900.*

SIR: I have the honor to submit the following report of extraordinary repairs and improvements needed at this station which will probably require action of Congress.

The reservation should be extended so as to include about six acres of the northern end of the island. This area should be leveled, filled, and graded, the cottage hospital moved to its northern end, and quarters for the junior officer on duty at the station constructed at the southern end of the new ground, estimated at $12,000.

The present reservation should be filled in about 6 or 8 inches, tile drained, and sodded, estimated at $4,000.

Respectfully,

T. F. RICHARDSON,
Assistant Surgeon, U. S. M. H. S., in Command.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

On September 22 the steamer *Falladon Hall* ran into the wharf, completely wrecking the southern ice break and about 40 feet of the wharf, causing damage to the extent of $8,000. This damage is now in the process of repair, and the question of payment for the same is in the hands of the collector of customs, who has been instructed by the Secretary of the Treasury to look after the interests of the Government in this matter.

DELAWARE BREAKWATER QUARANTINE; POST-OFFICE ADDRESS, VIA LEWES, DEL.

[Report of the medical officer in command, P. A. Surg. G. B. Young. Assumed command under official orders of November 27, 1897.]

U. S. Marine-Hospital Service,
Delaware Breakwater Quarantine Station,
via Lewes, Del., *September 3, 1900.*

Sir: I submit below a summary of the operations at this station during the fiscal year ending June 30, 1900.

As will be seen the number of vessels boarded was very considerably less than usual, nearly 100 less in fact, although the number of vessels coming this way was probably greater than usual. The reason of this was the occurrence of the South African war, necessitating the withdrawal from their usual routes of some hundreds of vessels, thus creating a strong demand for tonnage, so that the large number of vessels which usually call here in ballast for orders was reduced to nearly zero.

Vessels boarded and inspected	177
Vessels from infected ports	21
Vessel detained for completion of period	1
Vessel remanded for disinfection	1
Persons detained in quarantine	29

Respectfully,

G. B. Young,
Passed Assistant Surgeon, M. H. S., in command.

Surgeon-General Marine-Hospital Service.

CAPE CHARLES QUARANTINE; POST-OFFICE ADDRESS, VIA FORTRESS MONROE, VA.

[Report of the medical officer in command, P. A. Surg. B. W. Brown. Assumed command under official orders of March 8, 1900.]

Cape Charles Quarantine, *July 4, 1900.*

Sir: I have the honor to transmit herewith the following report of the number and treatment of vessels at Cape Charles Quarantine Station during the fiscal year ended June 30, 1900, viz:

Vessels inspected and passed	459
Vessels disinfected	25
Total	484

Respectfully,

B. W. Brown,
Passed Assistant Surgeon, M. H. S., in command.

Surgeon-General Marine-Hospital Service.

Correspondence Relative to Quarantine Procedures.

May 23, 1900.

Sir: Referring to the copy of resolution passed by the board of quarantine commissioners of Norfolk, and sent to you with request for support, and left by you at the Bureau yesterday, I have to make the following statement:

With regard to the rule against which the quarantine commissioners protest as being established by the Marine-Hospital Service for the detention of vessels at Hampton Roads after they have been absent from tropical or other suspected ports for more than thirty days, and especially after they have been granted pratique in other United States ports, it is to be observed that this regulation was formulated with the unanimous consent of a convention of quarantine officers of the Atlantic and Gulf States, assembled in this Bureau during the early part of the year 1893. It was based upon the principle that, while a vessel might be allowed to proceed from a port infected with yellow fever to ports in a northern part of the United States without disinfection and detention, provided no sickness existed on board or occurred during the voyage, the same procedure would not be safe at Southern ports. The presumption in this case, based upon very large experience and universally agreed to by the officers here assembled at that time was that ports north of the southern boundary of Maryland were reasonably free from the probability of infection, while those south of this line would be very much endangered if any infected material were brought into them. Of course the setting of the boundary line at the southern boundary of the State of Maryland was arbitrary, and any such line must of necessity be arbitrary. The legality of this procedure is established, however, by a ruling of the Attorney-General.

The Bureau realizes that there is probably less risk involved in admitting a vessel of this character to Norfolk than would be encountered in admitting the same vessel to Savannah; and, again, the same would hold good in admitting this vessel to New York as involving less risk than in admitting the same vessel to Norfolk; and, believing that commerce should be as little interfered with as possible, the rules of the Bureau have been most liberal in the treatment of vessels bound for Norfolk, and whereas under the strict application of the rule a vessel bound for Norfolk from infected ports would have been compelled to undergo disinfection at Cape Charles Quarantine and a subsequent detention of five days, as a matter of fact very few of these vessels have been so treated (only such as appear to absolutely need such treatment).

There can be no possible dispute as to the infectibility of the territory around Hampton Roads, the epidemic of yellow fever of 1899 having furnished conclusive evidence that this is still, as in the past, infectible territory, and consequently it would be unjust to the people of Norfolk and Portsmouth themselves to remove all restrictions upon vessels entering Hampton Roads from infected territory.

If such vessels as have gone to Northern ports before ariving at the Cape Charles Quarantine furnish certificates showing in detail that they have been treated in compliance with the Treasury regulations as to disinfection they may be admitted to entry without detention, but the Bureau can not accept the statement of the captain of the vessel as evidence that his vessel has complied with these regulations.

Respectfully,

Walter Wyman,
Supervising Surgeon-General, M. H. S.

Hon. Richard A. Wise,
House of Representatives, Washington, D. C.

Treasury Department,
Office of the Supervising Surgeon-General M. H. S.,
Washington, May 23, 1900.

Sir: I have to acknowledge receipt of your letter of the 18th instant, asking that vessels coming from infected ports, via ports north of the capes of Virginia, may be boarded at the capes by your pilots and brought to the national quarantine station at Hampton Roads, Va., and that the pilots be allowed to leave the vessel upon arrival and immediately report to the United States quarantine officer on board the *Jamestown*, night or day. This much the Bureau is willing to concede and will so instruct the officer in charge of the Cape Charles Quarantine; it being understood that the pilots will take nothing with them from the vessel.

As to your second request for the same privilege as to vessels coming direct from infected ports with a clean bill of health and without sickness on board, I would state that this also would be a reasonable request, were it not for the fact that there having been no previous inspection of the vessel by a quarantine officer, a truthful statement might not be made to your pilot, and he, boarding the vessel might find an actual case of sickness on board, in which case it would be imperative that the pilot should be quarantined with the vessel. I will, therefore, hold in abeyance any consent to your second proposition until further correspondence is had with you on the subject.

Respectfully,

Walter Wyman,
Supervising Surgeon-General M. H. S.

O. E. Edwards,
President Virginia Pilot Association, Norfolk, Va.

NORFOLK, VA., *July 2, 1900.*

DEAR SIR: Referring and replying to your letter of May 23 last, I have to thank you very much for that which was granted therein, and to say that since its receipt I have conferred with P. A. Surg. B. W. Brown, in charge of Cape Charles Quarantine, at Fort Monroe, Va., with regard to our request of May 19, as to "vessels coming direct from infected ports, with a clean bill of health and without sickness on board." I now suggest and request that a pilot on such vessel, upon arriving at the quarantine station, be allowed to leave and report immediately on board the *Jamestown* and there remain until the vessel has been fully inspected by the quarantine officer, and the pilot be then discharged by him.

Very respectfully,

O. E. EDWARDS,
President Virginia Pilot Association.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

JULY 5, 1900.

SIR: Referring to your letter of the 2d instant, with reference to certain additional arrangements to be made for pilots, I have to inform you that the medical officer in command of the Cape Charles Quarantine, at Fort Monroe, is authorized to conclude this arrangement with you, if in his judgment it appears to be advisable.

Respectfully,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

Capt. O. E. EDWARDS,
President Virginia Pilot Association, 273 Main street, Norfolk, Va.

CAPE CHARLES QUARANTINE, FORT MONROE, VA., *July 2, 1900.*

SIR: I have the honor to inform you that Captain Edwards, president of the Virginia Pilots' Association, called on me yesterday and showed me a letter that he had written to you, in which he requests that pilots on vessels coming to this port direct from infected ports, with no sickness aboard, be allowed to leave the vessel and report immediately on board the *Jamestown*, and remain there until the vessel has been inspected by the quarantine officer. In regard to the matter, I have to state that in my opinion it would be a very satisfactory arrangement, as pilots coming in at night instead of sleeping on the vessel would only be aboard a couple of hours, and as this time is spent on the bridge the chance of infection would be almost nil.

Respectfully,

B. W. BROWN,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

July 5, 1900.

SIR: Referring to your letter of the 2d instant, stating that Captain Edwards, president of the Virginia Pilots' Association, called on you yesterday and showed you a letter which he had written to the Bureau, requesting that pilots on vessels coming to your port direct from infected ports, but with no sickness on board, be allowed to leave the vessel and report immediately on board the *Jamestown*, and to your reasons for believing this to be a good arrangement, I have to inform you that you are authorized to make this arrangement with Captain Edwards and his association.

Respectfully,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

MEDICAL OFFICER IN COMMAND CAPE CHARLES QUARANTINE,
Fort Monroe, Va.

CAPE FEAR QUARANTINE; POST-OFFICE ADDRESS, VIA SOUTHPORT, N. C.

[Report of the medical officer in command, Asst. Surg. T. B. McClintic. Assumed command under official orders of March 8, 1900.]

Cape Fear Quarantine, *July 13, 1900.*

Sir: I have the honor to make the following report of this station for the fiscal year ending June 30, 1900:

During the year 80 ships arrived at this port, 5 of which were disinfected, 5 spoken, and 70 inspected and passed.

Respectfully,

T. B. McClintic,
Assistant Surgeon, M. H. S.

Surgeon-General Marine-Hospital Service.

Norwegian Bark Johanne Damaged by Storm While Undergoing Detention at Cape Fear Quarantine.

On October 30, 1899, a severe storm created considerable havoc at the Cape Fear Quarantine station, and the Norwegian bark *Johanne*, which was undergoing detention at the time, sustained serious damage. The owners of this vessel, by the diplomatic representatives of the Norwegian Government, made claim against this Government for damages to the amount of $4,498.41, through the United States Department of State.

The correspondence relative to this incident follows:

Southport, N. C., *October 30, 1899.*

Displayman:

Storm northeast, 10 p. m., Jacksonville, Savannah, Charleston, Wilmington, Morehead, Washington, Norfolk section. Norfolk storm central east of Key West will move north-northeast off the South Atlantic coast, attended by northeast gales from Virginia southward, shifting over Florida to northwest gales during Monday.

Moore.

[Telegram.]

Wilmington, N. C., *October 31, 1899.*

Storm last night badly damaged station; steamer *Woodworth* sunk. All boats, including launch and gangways, carried away. Crew and myself rescued by vessel in quarantine, bark *Johanne*, fifty days from Pernambuco via Barbados. Clean bill health from both ports. Crew well. Vessel had undergone preliminary disinfection of hold, forecastle, and cabin; ballast, except 8 tons, removed before storm struck us. Bark now on shore partially wrecked. I am on board, with all hands; impossible to further disinfect vessel; recommend release of bark, as she must be gotten offshore and repaired before another blow. Will write after visiting station.

Brown.

Surgeon-General Marine-Hospital Service.

Cape Fear Quarantine, *November 1, 1899.*

Confirming my telegram of yesterday relating to the damage at the Cape Fear quarantine station from the storm of Monday night, I have the honor to report as follows: The bark *Johanne*, from Pernambuco via Barbados, was in quarantine, and the preliminary disinfection had been completed and ballast removed, with the exception of about 8 tons, when we were forced to quit work on account of bad weather. At this time, Monday afternoon, a moderate northeast gale was blowing. About 2 o'clock a. m. the wind changed to the southeast and the storm rapidly increased in force. It took us so much by surprise that we had scarcely reached the fumigating house, the rendezvous in time of danger, before the gangways and boats were carried away by a tremendous sea. The same high wave tore the bark away from the wharf, and we had to be rescued by means of ropes, the vessel having drifted 20 feet from the wharf. At the time of leaving the fumigating house we were waist deep in water. In order to save the bark from capsizing the rigging had to be cut away, and although two anchors were let go she drifted on shore, and the next day I had to allow a tug to come alongside to save the ship. We landed at the station this morning and found it, in some respects, badly damaged. The men's quarters, being 3 feet above the gangways, was damaged very little, although this building bore the brunt of the storm. Several blinds were torn off, three windows blown in, and the kitchen floor slightly damaged. The hospital porch was wrecked and the building badly flooded, one door being wrenched from the hinges. The fumigating house was not injured, although flooded to a depth of 2 or 3 feet, but the western part of the wharf surrounding this building was completely wrecked. The machinery apparently was not injured, but I will be able to tell definitely when steam is turned on. The steamer *Woodworth* was sunk. One of the dolphins and all the gangways were carried away. The launch was driven over the gangway and was ground to pieces by the *Woodworth.* The only boat saved was the whaleboat, which was found caught in wreckage of the fumigating wharf; although she is badly injured, we hope to save her. The iron pipe to the artesian well was broken, and only one of the large cisterns recently erected escaped. The water in this cistern being mixed with salt water, the station is now without fresh water. The porch to the office building in town was blown off, and the entire water front of Southport was wrecked, a tug and a passenger steamer being carried up into town. I released the bark on receipt of your telegram, and to-morrow I will have a contractor furnish me with an estimate of the cost of the absolutely necessary repairs, and will transmit it at once to the Bureau. My men, the first thing, put down a temporary gangway connecting the buildings. The damage to the fumigating wharf will have to be repaired at once, as no vessel can come alongside for disinfection until this work is done, and the galvanized-iron pipe asked for in my telegram of to-day is absolutely necessary to furnish water for the boiler. I will also have to hire a boat for boarding purposes and one for use of the men at the station until necessary boats can be furnished by the Bureau. In addition to the above-described damages I am afraid many articles have been washed overboard. I do not consider the damage to the station, outside of the loss of boats, very much, as the planking of the gangways was very rotten—in fact, much more so than I could judge when I sent in my report for repairs, and it would have required replacing in less than a year under ordinary circumstances. The most serious damage is the wreck of the fumigating wharf.

B. W. Brown,
Passed Assistant Surgeon.

Surgeon-General Marine-Hospital Service.

Department of State, *Washington, March 1, 1900.*

Sir: I have the honor to inclose for investigation by your Department and an expression of its views copies of a note from the minister of Sweden and Norway at this capital, and accompanying papers, presenting the claim of the Norwegian bark *Johanne* for $4,498.41, damages incurred, as is alleged, at the United States quarantine station at Southport, N. C., owing to the instability of the wharf to which the vessel was moored by order of the representative of the Government.

I have the honor to be, sir, your obedient servant,

John Hay.

The Secretary of the Treasury.

Treasury Department, *Washington, March 17, 1900.*

Sir: Referring to your letter of the 1st instant, inclosing a communication dated February 26, from the minister of Sweden and Norway, regarding the complaint of the captain of the bark *Johanne*, to the effect that he had sustained damages while undergoing disinfection at the Cape Fear quarantine station, I have the honor to transmit herewith a communication from the Surgeon-General of the United States Marine-Hospital Service in answer thereto.

From the letter of the Surgeon-General it would appear that the damage to the vessel was due to the violence of the storm and not to any fault of the station or the officer in charge thereof.

Respectfully,

O. L. Spaulding,
Acting Secretary.

The Secretary of State.

Treasury Department,
Office of the Supervising Surgeon-General,
Washington, D. C., March 16, 1900.

Sir: Referring to the communication of the minister of Sweden and Norway, with inclosures, regarding the damage to the Norwegian bark *Johanne* claimed to have been sustained by said vessel during her stay at the United States quarantine station at Southport, N. C., on October 30, 1899, I have the honor to submit herewith a copy of the report from the medical officer in command of the quarantine station at Southport, from which it may be seen that nothing was left undone by the said medical officer which should have been done; that the storm was of extreme violence, and that the damage sustained by the vessel was due to the violence of the storm entirely, and not to any dereliction of duty on the part of the officer in command of the station nor to any deficiencies of the station itself, it being improbable that any structure at that point could have so held the vessel as to prevent any damage under the existing weather conditions.

Respectfully,
Walter Wyman,
Supervising Surgeon-General M. H. S.

The Secretary of the Treasury.

March 5, 1900.

Sir: I have to inclose herewith a communication from the minister of Sweden and Norway to the honorable Secretary of State, presenting the claim of the Norwegian bark *Johanne* for damages sustained on October 31, 1899, at the Cape Fear quarantine station.

You are directed to report fully upon the circumstances attending this damage, in order to enable the Bureau to take intelligent action thereon.

You will include in your report an official statement of the Weather Bureau regarding the storm at that time.

You will return with the report the inclosed document.

Respectfully,
Walter Wyman,
Surgeon-General M. H. S.

Medical Officer in Command Cape Fear Quarantine,
Southport, N. C.

Office of Medical Officer in Command, M. H. S.,
Cape Fear Quarantine Station,
Southport, N. C., March 8, 1900.

Sir: I have the honor to acknowledge the receipt of your letter dated March 5, 1900, inclosing a communication from the minister of Sweden and Norway, and directing me to report fully upon the circumstances attending the damages sustained by the Norwegian bark *Johanne* while at the Cape Fear quarantine station during the storm of October 31, 1899, and also directing me to inclose an official statement of the Weather Bureau regarding the storm at that time. In reply I have to state that the bark *Johanne* was put in quarantine on the 28th of October, and after a preliminary disinfection removal of the ballast was begun at 6 o'clock a. m. on the 30th. Some time during the morning northeast storm signals were noticed flying in Southport, and a moderate northeast wind was blowing. On account of the rain, work was discontinued at 4 o'clock p. m., leaving some 8 or 10 tons of ballast still in the vessel. Early in the night the storm increased in force and the captain of the bark made fast to every available point about the station. About 2 o'clock a. m., October 31, the wind suddenly shifted to the southeast, and increased to a gale. The captain now cut up the planking in the fumigating wharf, and made fast to the beams. An hour later the water had risen over gangways, and was about 2 feet deep in the fumigating house. All at once a tremendous wave struck the station, sinking the steamer *Woodworth* and other boats, carrying away western dolphin and all gangways, and completely wrecking the western wharf of the fumigating house. As the stern of the bark *Johanne* was made fast to this wharf and dolphin, when they gave way the vessel swung out into the stream, and was only held by her bow lines. The quarantine force having been taken aboard the bark, the anchors were let go, and as the vessel swung to her anchors she careened to such an angle that I was almost certain we would capsize; and it was at this time that the captain cut away the rigging. The vessel dragged her anchors and in a few minutes she was aground in soft mud on the north shore of the river and in a dangerous position. The top rigging was now cut away and the vessel, at high tide, floated into deep water.

A northeast storm is not a dangerous one in this harbor. The station being near the northern bank of the river, is thoroughly protected. There were no indications of a southeast storm, and in proof of this the army steamer *Southport* and the tug *Blanche*, both with captains familiar with this harbor, were at their wharves with banked fires, and the change in the wind was so sudden and unexpected that they could not get away, and both vessels were washed ashore. Before seeing storm signals a large portion of the ballast had been removed, and at no time during the day did the captain of the bark protest against the removal of the ballast. Everyone thought it was an ordinary northeast storm.

I inclose herewith a statement of the Weather Bureau in regard to the abovementioned storm, and also return the communication from the minister of Norway and Sweden.

Respectfully,
B. W. Brown,
Passed Assistant-Surgeon, M. H. S., in Command.

SAVANNAH QUARANTINE; POST-OFFICE ADDRESS, VIA SAVANNAH, GA.

[Report of the medical officer in charge, Acting Asst. Surg. Wm. J. Linley. Assumed charge under official orders May 2, 1899.]

Office of Medical Officer in Command, M. H. S.,
Savannah Quarantine,
Savannah, Ga., July 27, 1900.

Sir: I have the honor to submit the following report of the transactions at this station for the fiscal year ending June 30, 1900:

Three hundred and twenty-nine vessels, carrying 6,415 seamen and 60 passengers, were boarded and inspected; 281 of these passed up to Savannah, 11 put to sea, 2 were remanded to South Atlantic quarantine for disinfection, and 25 were disinfected and detained at this station. Twenty-six of the above vessels were boarded in Tybee Roads; 17 of these were inspected and passed, and 9 held under quarantine restrictions; of the former, 11 proceeded to Savannah and 6 put to sea; of the latter, 5 put to sea, 3 were disinfected at this station and passed up to Savannah, and one was remanded to South Atlantic quarantine for disinfection.

Countries from which vessels cleared.

United States	65	Portugal	5
England	64	Ireland	3
West Indies	31	Madeira Islands	3
Germany	27	Scotland	2
Brazil	18	Australia	2
Holland	16	Russia	2
France	16	St. Helena	1
Spain	15	Malta	1
Italy	13	Canada	1
Canary Islands	10	Sweden	1
Belgium	9	Chile	1
Africa	7	Cape Verde Islands	1
Azores	7	French Guiana	1
Norway	6	Sicily	1

Nationality and class of vessels boarded during the year.

	British.	Norwegian.	Italian.	German.	American.	Swedish.	Austrian.	Belgian.	Dutch.	Spanish.	Austro-Hungarian.	Total.
Steamships	111	10	2	6	1	......	5	6	1	......	1	143
Ships	......	8	1	......	......	......	......	......	......	......	......	9
Barks	1	84	31	8	2	11	4	......	......	1	......	142
Barkentines	4	2	2	2	......	......	......	......	......	......	......	10
Brigs	......	......	......	......	1	......	......	......	......	......	......	1
Schooners	7	......	......	......	11	......	......	......	......	......	......	18
Yachts	......	......	......	......	2	......	......	......	......	......	......	2
Tugboats	......	......	......	......	3	......	......	......	......	......	......	3
Barges	......	......	......	......	1	......	......	......	......	......	......	1
Total	123	104	36	16	21	11	9	6	1	1	1	329

The average period of detention for the 25 vessels disinfected was nine days. The nationality and class, the countries from which the vessels cleared, and the nature of ballast brought appear in the following tables:

Nationality and class of vessels detained.

	British.	Norwegian.	German.	Austrian.	Italian.	American.	Total.
Steamships	1	......	......	......	......	......	1
Barks	1	8	2	1	2	1	15
Barkentines	......	1	......	......	......	......	1
Schooners	2	......	......	......	......	6	8
Total	4	9	2	1	2	7	25

Countries from which detained vessels cleared.

Brazil	11	Antigua	1
Cuba	8	Haiti	1
Guadeloupe	2	Portugal	1
Barbados	2	France	1

Nature of ballast brought by vessels detained.

Sand	8	Stone and gravel	1
Earth	1	Slag and gravel	1
Stone	4	Sand and stone	1
Water	1	Swept holds	8

Three thousand seven hundred and forty-five tons of ballast were discharged, the greater portion being clean sand and granite rock.

Two vessels, regarded as infected, were remanded to South Atlantic quarantine for disinfection—the Swedish bark *Gurli* with a history of 6 cases of yellow fever and 2 deaths at Bahia, and 5 cases and 1 death at sea; and the German bark *Eduard*, with a history of 1 death at sea. The history of the case on the bark *Eduard* (as given by the man who acted as nurse) was that when seven days out from Para the boy was seized with headache, pains in the back and limbs, and moderate fever; that the pulse ran between 70 and 90, the eyes became injected and slightly jaundiced, and that the patient died on the fourth day of illness. The history of this case was regarded as extremely suspicious, though, of course, a positive diagnosis was impossible. No vessel arrived with quarantinable disease aboard at the time of inspection, nor did any develop after arrival.

In addition to the 25 vessels disinfected at this station, 11 were held for instructions from the Bureau; 9 of these were inspected and passed, and 2 remanded to South Atlantic quarantine for disinfection.

W. J. Linley.

To the Surgeon-General, M. H. S.

Correspondence Relative to Quarantine Procedures.

December 28, 1899.

Sir: Referring to your letter of the 22d instant, inclosing a copy of a letter which you have addressed to the pilots' association at Savannah, Ga., giving them instruction with regard to ports infected with, or suspected of being infected with, plague, I have to inform you that the Bureau approves of the letter and you are authorized to forward the same to the pilots' association.

Your letter to the pilots' association is returned herewith.

Respectfully,

Walter Wyman,
Surgeon-General M. H. S.

Acting Assistant Surgeon in Charge,
Savannah Quarantine, Ga.

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
SAVANNAH QUARANTINE,
Savannah, Ga., December 22, 1899.

GENTLEMEN: In order to avoid the detention of pilots at quarantine, it is requested that the following rules relative to vessels arriving at this port from quarantinable ports be observed until further notice:

(1) Pilots should not go aboard vessels that arrive from yellow-fever ports and have had sickness aboard during the voyage or within thirty days next preceding arrival. These vessels should be led in.

(2) All vessels from Oporto (Portugal) and Santos (Brazil), whether said vessels have had sickness aboard or not, are subject to disinfection and detention, and the pilot—should he go on board—is subject to fifteen days' detention at quarantine. These vessels should be led in.

It is likewise suggested that pilots lead in vessels arriving from any of the below-mentioned ports:

China, any port in; India, any port in; Japan, any port in; Alexandria, Bushire, Lisbon, Penang, Singapore, Lourenço Marquez, French Ivory Coast Colony, and Mozambique (Africa), Tamatave, Mauritius.

Respectfully, yours,

WM. J. LINLEY,
Acting Assistant Surgeon, U. S. M. H. S.

PILOTS' ASSOCIATION,
Pilots' Office, Savannah, Ga.

DECEMBER 15, 1899.

SIR: Referring to your letter of the 12th instant, requesting information as to whether, in the event of your passing a vessel going to Savannah whose papers give her destination as a port other than Savannah, you shall state in the certificate of discharge that the vessel is bound for Savannah; and to your further query as to whether it is the duty of the quarantine officer to board vessels lying in Tybee Roads which have hoisted the quarantine flag, and whether the master of such a vessel, if clean and provided with a clean bill of health, may be permitted to go ashore on business; and if so, shall he be furnished with a certificate of discharge in order that he may do so, I have to inform you, in answer to the first query, that, inasmuch as Savannah is a port of call, it not infrequently happens that vessels with papers showing their destinations other than Savannah may enter at the port of Savannah, and that you should state on the certificate of discharge the port for which you know the vessel to be bound regardless of what her papers may give as her destination.

As to the second query, you are instructed that you should board any vessel which hoists the quarantine flag in Tybee Roads, in continuance of the long-established custom at that point, a tug having been provided at the quarantine station in part for this very reason. If a vessel lying in Tybee Roads awaiting orders is of such a class as to sanitary history, etc., that you would pass this vessel without disinfection, it is perfectly legitimate to allow the captain to go ashore on business, and you are authorized to furnish him a certificate to that effect in order that he may do so.

Respectfully,

WALTER WYMAN,
Surgeon-General Marine-Hospital Service.

MEDICAL OFFICER IN COMMAND, SAVANNAH QUARANTINE,
Savannah, Ga.

SOUTH ATLANTIC QUARANTINE; POST-OFFICE ADDRESS, VIA INVERNESS, GA.

[Report of the medical officer in command, P. A. Surg. HUGH S. CUMMING. Assumed command under official orders May 15, 1899.]

SOUTH ATLANTIC QUARANTINE, *June 30, 1900.*

SIR: In accordance with paragraph 644, Revised Regulations, Marine-Hospital Service, 1897, I have the honor to report the following transactions at this station during the fiscal year ending this instant:

During the year 127 vessels were boarded and inspected, of which number 113 were sailing vessels and 14 steam vessels; 104 of these were passed without detention and 23 were detained and disinfected; 22 of the vessels detained were sailing vessels and 1 a United States tugboat.

The vessels disinfected were from the following ports: Santos, 3; Habana, 1; Sagua la Grande, 2; Key West, 2; Para, 4; Rio de Janeiro, 2; Caballeria, via Habana, 1; Bahia, 2; Pernambuco, 1; Lourenço Marquez, 1; Parahiba, Brazil, 1; Cape Town, 1; Barcelona, 2; total, 23.

Of this number 1 arrived from Caballeria, via Habana, with 1 case of yellow fever on board (death after arrival); 1 from Lourenço Marquez with 6 cases and a history of 4 deaths en route from beri-beri; 1 from Bahia with a history of 2 deaths and 6 cases of yellow fever en route; 1 from Rio with 4 deaths and 10 (?) cases of yellow fever on the trip; 1 from Barcelona remanded because death on board suspected plague; 1 from Cape Town with convalescent case of suspected typhus.

Four thousand five hundred and seventy tons (estimated) of stone, sand, and other ballast were removed from these vessels by the steam hoists and several hundred tons of close-grained clean rock furnished vessels going to other ports. In every case ballast so furnished is dipped in bichloride of mercury solution, 1:800, under station supervision.

The average number of days' detention of vessels from plague-infected ports has been twenty-two days; from yellow fever infected ports 10 11/18 days, and there are now two vessels undergoing disinfection.

This being a proper "refuge" station, vessels arriving at neighbor stations with suspicious sickness or deaths or a history of such during the voyage are generally remanded here. Of the vessels disinfected at this station during the year 1 was remanded from the Fernandina, 2 from the Savannah, and 7 from the Brunswick quarantine stations.

Hugh S. Cumming,
Passed Assistant Surgeon, in Command.

Surgeon-General Marine-Hospital Service.

BRUNSWICK QUARANTINE; POST-OFFICE ADDRESS, VIA BRUNSWICK, GA.

[Report of the medical officer in charge, Acting Asst. Surg. R. E. L. Burford. Assumed charge under official orders September 1, 1893.]

Office of Medical Officer in Command, M. H. S.,
Brunswick Quarantine, September 5, 1900.

Sir: The following is the sanitary report from this station for the year ended June 30, 1900:

Four hundred and ninety-seven vessels under coastwise clearance were spoken and passed. One hundred and thirty-five vessels, foreign and domestic, from foreign ports, were inspected and given pratique. Forty-six vessels, foreign and domestic, were inspected, detained, and given treatment. Thirty-three of this number arrived between the 1st of April and November 1, and were disinfected in accordance with rules prescribed for treatment of vessels infected with yellow fever, and detained five days afterwards. Thirteen vessels from yellow-fever-infected ports arrived, in ballast, between November 1, 1899, and April 1, 1900. Their ballast was discharged and holds washed before they were given pratique.

Seven vessels were remanded from this station to South Atlantic quarantine for disinfection, on account of having or having had infectious disease aboard on arrival or during the voyage.

The greater number of vessels disinfected were from ports of Cuba; 16 being from Habana, 3 from Cienfuegos, 1 from Nuevitas, 2 from Gibara, 2 from Sagua la Grande, 1 from Cardenas, and 1 from Matanzas. From ports of Brazil, 2 were from Bahia, 4 from Para, 4 from Pernambuco, 3 from Rio de Janeiro, 3 from Santos. Of the remaining number disinfected, 1 was from Demerara, 1 from Santo Domingo, 1 from Porto Rico. Out of 46 vessels disinfected, 6 were American, 25 Spanish, 6 Norwegian, 3 British, 2 Portuguese, 1 Italian, 1 Russian, 1 German, 1 Uruguayan.

Out of 135 vessels inspected and passed, 27 were American, 21 Spanish, 31 Norwegian, 16 Swedish, 31 British, 3 Italian, 6 Russian.

From the various vessels disinfected 6,470 tons of ballast were discharged at quarantine—4,195 tons of rock, 2,275 tons of sand. Those in stone ballast were from Rio de Janeiro, Santos, and Habana. With the exception of one or two cargoes, this rock was practically clean. One vessel from Habana brought water ballast in casks filled inside the harbor. The sand ballast, with but few exceptions, was fairly good.

No quarantinable disease developed on board any of the vessels treated while in this port, neither in the personnel of the station.

Respectfully,
R. E. L. Burford,
Acting Assistant Surgeon, U. S. M. H. S.

Surgeon-General Marine-Hospital Service.

TORTUGAS QUARANTINE STATION; POST-OFFICE ADDRESS, VIA KEY WEST, FLA.

[Report of the medical officer in command, Asst. Surg. JOHN McMULLEN. Assumed command under official orders of June 7, 1900.]

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
Tortugas Quarantine Station, via Key West, Fla., September 11, 1900.

SIR: In pursuance of instructions contained in Bureau letter of the 31st ultimo, I have the honor to submit the following sanitary report of this station for the fiscal year ended June 30, 1900:

During the year there were inspected 38 steamers, 42 sailing vessels, and 3 barges. Of this number, 79 were disinfected, 1 inspected and passed, 1 held to complete period of detention, 1 who refused treatment, and 1 remanded to Mullet Key owing to press of work in establishing a detention camp. Fifty-six of these vessels were from Cuba, Habana being the port of departure of 26, 5 from Brazil, and the remainder from other South American and West Indian ports. Six vessels arrived with cargo and 20 in ballast, as follows: Ten with water, 5 with sand, 2 with stone, and 3 with iron ballast. The greater number of vessels which arrived during the past year were flying the American flag, and the remainder were Norwegian, Spanish, British, German, and Russian.

Two vessels arrived during the year with contagious diseases on board. The American barge *Henry L. Gregg*, from Habana, arrived September 10, 1899, and the steamer *Ambrosia Bolivar*, from Key West, arrived October 6, 1899, each with a case of yellow fever on board. Both of the cases recovered. Eleven patients were furnished office treatment and 4 hospital relief, 2 of whom were diagnosed as yellow fever.

On September 6, 1899, during the yellow-fever epidemic in Key West, the Tortugas detention camp was opened for the reception of refugees, and closed on November 15, 1899. During this period the number of refugees received was 143. Twenty cases of yellow fever were treated at the isolation hospital on Bird Key from the camp, with no deaths.

Respectfully,

JOHN McMULLEN.
Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE HOSPITAL-SERVICE.

CORRESPONDENCE RELATIVE TO THE RELINQUISHMENT OF DRY TORTUGAS.

NAVY DEPARTMENT,
Washington, April 10, 1900.

SIR: Referring to previous correspondence (letter of Acting Secretary Spaulding, February 9, 1900, J. H. W., etc.) relative to the proposed suspension of work under contracts made by this Department for structures for the naval coaling station at Dry Tortugas, Fla., owing to the necessity for a strict quarantine during the coming season, I inclose herewith for your information a copy of a letter, dated the 7th instant, from the Secretary of War, transferring to this Department, by direction of the President, the military reservation of Dry Tortugas, reserved by Executive order dated September 17, 1845.

Inasmuch as said reservation is needed by this Department for a coaling station and other naval purposes, and as it is important to the public interests that the work now in progress there under contracts for piers, coaling sheds, etc., be advanced as rapidly as practicable, I have the honor to request that the quarantine station thereon be removed, the same having been established under the permission given by the Secretary of War in a letter dated January 15, 1889, to the Secretary of the Treasury to use Garden, Bird, and Loggerhead keys for a quarantine station, on the condition that those keys be restored to the custody of the War Department should the necessity arise to use them for military purposes.

Very respectfully,

CHAS. H. ALLEN,
Acting Secretary.

The SECRETARY OF THE TREASURY.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., March 29, 1900.

MEMORANDUM FOR THE HONORABLE THE SECRETARY OF THE TREASURY, IN RE TORTUGAS QUARANTINE.

Dry Tortugas was transferred to the Treasury Department for quarantine purposes in 1888, and by Congressional legislation $175,000 have been appropriated and expended on the station. A board appointed by the Secretary of the Treasury in 1888 to select a site in the vicinity of Key West reported that this was the only available one. It is the only refuge station between Blackbeard Island, off the coast of Georgia, and Ship Island, in the Gulf of Mexico. By refuge station is meant a station equipped for the treatment of a badly infected ship. Other quarantines are quarantines for inspection and for the ordinary disinfection of suspected material, but are not provided with means for detaining crews and passengers and otherwise caring for a badly infected vessel. Key West, for example, is a quarantine station, but an infected vessel could not be treated there. Invariably such a vessel is sent to Tortugas. The same may be said of the other quarantine stations at Fernandina and Mullet Key, in Florida; in fact, Florida, which is in so close proximity to Cuba, is dependent on the Tortugas for the reception of its badly infected vessels.

This station is at the entrance of the Gulf, almost in the direct line of commerce for vessels approaching the United States either from the Gulf of Mexico or from the South Atlantic Ocean. Its position with regard to Habana and Cuban ports makes it particularly available for the quarantining of vessels therefrom. The utility of this station is set forth in detail in the report of Surgeon Carter, part of which is inclosed (inclosure 1).

As a war measure the erection of coal sheds by the Navy Department was not objected to, because it seemed at the time to be an absolute necessity, and because the presence of these coal sheds when completed, with the occasional calling of a vessel for coal, the whole naval establishment being entirely outside the fort and removed from vessels undergoing quarantine, was not considered incompatible with the maintenance of a quarantine station. Therefore, what was granted in a spirit of cooperation by this Department, it seems, is now being used as a reason for demanding an entire surrender on the part of this Department. It was understood at the time the coal sheds were erected that they were to be there subsidiary to the quarantine, and no suggestion was made of their ever being used as a means for disturbing the quarantine. I wish to state here that my only information of this desire of the Navy Department was through the articles published in the New York Tribune until I learned that the matter had been brought to your attention last Friday, March 23.

I do not feel justified in replying to the press arguments for turning the station over to the Navy, as they are unofficial. I may say, however, that the immediate cause for any action by the Navy Department appears to be the request made by yourself, that the work of construction should be deferred until after the close of the present quarantine season, November 1.

I inclose copy of the letter of the officer in command of the station of February 3 (inclosure 2), my letter to you on the subject (inclosure 3), and your letter to the Secretary of the Navy (inclosure 4).

In accordance with this last letter, a reply has been received from the Secretary of the Navy expressing his willingness to comply with the request, and to cause a cessation of the work on April 1. I wish to add that the coming season is looked upon with apprehension. There has been more yellow fever in the past four months in Habana than in any corresponding period in the last ten years, excepting 1893. While Habana has been cleaned, there has been no new sewerage system, and a number of the cases recently reported have been in the best part of the city.

It appears to me extremely unwise, just at the beginning of the quarantine season, to attempt to remove this most important safeguard of the United States. My understanding is that the coal sheds have been practically completed, but that the work which will be interrupted will be the erection of piers. It will take considerable time to perform this labor, so that in any event coaling can not be carried on there within the near future.

I can see no reason why this work on the piers may not be suspended until November, and then be resumed.

Respectfully,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

TREASURY DEPARTMENT,
Washington, April 28, 1900.

SIR: Referring to your letter of the 10th instant, requesting the immediate removal of the quarantine station from Dry Tortugas, that location having been transferred by the War Department to the Navy Department, I have to inform you that at a recent hearing before the Committee on Appropriations of the House of Representatives, at which Rear-Admiral Bradford of the U. S. Navy was present and represented yourself, it was suggested by the chairman of the committee that the Marine-Hospital Service should be left in undisturbed possession of Tortugas, the Navy withdrawing all workmen and having no representative there until the 1st day of November, and that in the meantime estimates should be submitted for an appropriation to provide for quarantine equipment elsewhere to replace the Tortugas station. It is understood that the Marine-Hospital Service will vacate after November 1.

In accordance with this agreement, thus arrived at, and because the quarantine service should be unembarrassed by the presence of laborers, I respectfully request that the necessary action to this end be taken by your Department.

Respectfully,

L. J. GAGE, *Secretary.*

The SECRETARY OF THE NAVY.

GULF QUARANTINE; POST-OFFICE ADDRESS, VIA BILOXI, MISS.

[Report of the medical officer in command, Surg. P. C. Kalloch. Assumed command under official orders of December 28, 1898.]

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
Gulf Quarantine Station, September 4, 1900.

SIR: I have the honor to report the following transactions, relating to the sanitary work of this station, for the fiscal year ending June 30, 1900:

Number of vessels inspected and passed, including those inspected at the West End station, 105; number disinfected, 117.

During the first half of the year the following cases of infectious disease occurred on vessels treated at the station:

Norwegian bark *Gudrun*, from Bahia; several cases beriberi.

Norwegian steamer *Songa*, from Habana via Matanzas; 1 case yellow fever on arrival.

Norwegian bark *Urania*, from Rio de Janeiro; sent 3 cases yellow fever to hospital in Rio; the captain and 3 sailors died en route.

Spanish steamer *Mayo* had 5 cases yellow fever at Vera Cruz, and 1 en route to Mobile.

Schooner *Anna M. Stammer*, from Habana, had 1 case yellow fever en route; 2 others on arrival, 1 proving fatal.

Danish steamer *Flandria*, from Cuba; 1 case typhoid fever.

Norwegian steamer *Transit*, 2 cases yellow fever at Progreso, originating at Vera Cruz, 1 ending fatally.

Norwegian bark *Stanley;* captain died at Para of typhoid; his successor sick en route with fever, delirium, and vomiting.

Schooner *Mary E. Riggs;* 3 cases yellow fever in Key West; 1 case on arrival here.

Russian schooner *Puhlin;* captain died at Para of yellow fever; 1 sailor died en route.

During the latter half of the year no vessels known to be infected, or with history of recent infection, arrived.

There has been no illness of an infectious nature among the resident population of station, except 1 case of tuberculosis, probably contracted elsewhere.

Respectfully,

P. C. KALLOCH, *Surgeon, M. H. S.*

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

Table showing transactions at Gulf quarantine during the fiscal year ending June 30, 1900.

Month.	Vessels inspecte and passed.	Vessels disinfected and held.	Month.	Vessels inspected and passed.	Vessels disinfected and held.
1899—July	10	19	1900—February	10	0
August	7	22	March	16	1
September	5	11	April	5	18
October	8	14	May	2	16
November	13	0	June	10	12
December	9	2			
1900—January	10	2	Total	105	117

SAN DIEGO QUARANTINE; POST-OFFICE ADDRESS, VIA SAN DIEGO, CAL.

[Report of the medical officer in charge, Acting Asst. Surg. W. W. McKay. Assumed charge under official orders of April 4, 1889.]

San Diego Quarantine, *July 29, 1900.*

Sir: I have the honor to submit herewith annual report of the transactions of this station for the fiscal year ending June 30, 1900.

During this time the number of vessels inspected was 191 as against 154 for the preceding year. Most of these vessels were steamers, their ports of departure being Hongkong, China; Yokohama, Japan; Honolulu, Hawaii; Hamburg, Germany; Valparaiso, Chile; South and Central American and Mexican coast ports.

Of these vessels, 8 steamers were detained for bathing of passengers and disinfection of baggage and bedding, 1 was detained on account of having to undergo complete disinfection, she having docked at Honolulu during the plague epidemic at that place, 2 steamers were detained at the station over night on account of their arrival after dark. The other 180 vessels were inspected and passed.

Five hundred persons were bathed and 1,300 pieces of baggage and bedding and a number of cases of plants and loam-packed eggs were disinfected.

Respectfully,

W. W. McKay,
Acting Assistant Surgeon, M. H. S.

Surgeon-General Marine-Hospital Service.

SAN FRANCISCO QUARANTINE; POST-OFFICE ADDRESS, VIA ANGEL ISLAND, CAL.

[Report of the medical officer in command, Surg. J. J. Kinyoun. Assumed command under official orders of April 27, 1899.]

Marine-Hospital Service,
Office of Medical Officer in Command,
San Francisco Quarantine Station,
Angel Island, Cal., September 1, 1900.

Sir: I have the honor to transmit herewith my report of the transactions of this station during the past fiscal year.

The total number of vessels inspected was 952; on board, 58,898 of the crew, and 46,320 passengers. The countries from which these vessels hailed are as follows:

American	556
Austrian	2
British	252
Chilian	1
French	26
German	19
Hawaiian	34
Italian	3
Japanese	15
Mexican	1
Norwegian	41
Russian	2
Total	952

One hundred and twenty-three vessels were disinfected in accordance with the regulations for the following quarantinable diseases: Bubonic plague and smallpox.

In addition to the above 6 vessels were either partially or completely disinfected at the request of the War Department for tuberculosis, enteric fever, glanders, and dysentery.

One hundred and twenty-three vessels were disinfected either wholly or in part, on account of having quarantinable diseases on board or having been exposed to the liability of disinfection. Besides those which came under the provisions of the regulations 6 vessels were disinfected, on request of the War Department, for infectious diseases, such as enteric fever, tuberculosis, tropical dysentery, and glanders.

The treatment of the personnel of the vessels was as follows:

Passengers (first cabin):	
Number bathed and baggage disinfected	49
Number held for observation and baggage disinfected	106
Baggage disinfected only	413
Total treated	568
Passengers (second cabin):	
Number bathed and baggage disinfected	1,694
Number held for observation, bathed, and their baggage disinfected	136
Baggage disinfected only	96
Total	1,926
Passengers, Asiatics (steerage):	
Number bathed and baggage disinfected	11,055
Number held for observation	145
Total	11,200
Crew:	
Number bathed and baggage disinfected	4,075
Number whose baggage was disinfected	279
Total	4,354

It will be seen by the above that 16,873 passengers and crew were bathed and their effects disinfected. In addition to this the personnel of the Thirty-first and Forty-eighth regiments, which were in quarantine on Angel Island, which would make a total of 19,685 persons who have been treated in this manner. This number does not include those whose baggage and personal effects were disinfected only. These were 788. One vessel was placed in quarantine on account of cases of bubonic plague having developed en route, and was on her arrival presumably infected. The personnel of the vessel was held the prescribed time, while the vessel, after having been disinfected, a new crew being furnished, was released. A detailed account of the complications resulting from this action will be given later in the report.

One other vessel arrived with smallpox on board, the personnel of which was held the allotted time, as is prescribed, after which the vessel and contents were disinfected. The bulk of the work of disinfecting vessels arose from the appearance of bubonic plague in the Hawaiian Islands, when it became necessary to treat nearly all the vessels arriving from ports of these islands. This continued for nearly half the year—from the middle of December until May. Owing to the lack of facilities for handling vessels expeditiously the work of disinfection was not only performed under difficulties, but no little delay to the discharge of vessels ofttimes occurred.

The station is on the whole in fair condition, considering the undue amount of work which has fallen to its lot, and the lack of proper appliances and conveniences which are so necessary for expedition and thoroughness. Notwithstanding these drawbacks it has been possible to make a number of improvements and additions which has materially helped in the performance of the duties pertaining to quarantine.

Soon after assuming charge of the station it became necessary to make some additional arrangements with the War Department relative to the landing of the army of the Philippines, which was on the eve of returning home. After a consultation with the chief surgeon, Colonel Forwood, and the chief sanitary inspector, Colonel Greenleaf, it was arranged to have a detention camp of a capacity of 2,500 erected on Angel Island, and so arranged as to make two camps if need be or to separate into groups. This was accordingly done, and was made ready for occupancy soon after the first contingent arrived. The camp was admirably designed and well constructed, so as to permit of use even in the most inclement weather.

When the camp was ordered erected it became possible to obtain telegraphic communications with the military line at the post. A telephone line connected the camp with the post, and this passed through the quarantine reservation, where a telephone was installed in the executive building and communication with the outside world became an accomplished fact. By such arrangement the quarantine station was placed in direct communication with the detention camp as well as with the post, now that it became so often necessary to communicate with both places. Telegrams can now be sent from and received at the station at all times during the day, and at last does away with the isolation.

As mentioned in a previous report, the hospital facilities are inadequate for the needs of the station, as only one building had been erected for the treatment of those suffering from contagious diseases. On account of the manner of construction it was not suitable to treat more than one class of contagious diseases. In the event that two quarantinable diseases should have to be provided for some other provision must necessarily be made. Accordingly I addressed a letter to the chief surgeon requesting authority to use for the time being the two points of land just outside the reservation which jut out into the bay, for hospital purposes, and that a number of hospital tents be also provided. No difficulty was experienced in having this done, and as soon as permission was granted the Bureau was asked for authority to erect a temporary hospital on these points. At first $400 was allotted for lumber, pipe, wire, etc., when accommodations for 24 persons were provided. This location of the hospital, which was for the present hospital tents floored and walled and provided with sewerage systems, was sufficiently isolated so as to preclude the possibility of contagion from them to anyone who might be detained at the station. Subsequently and at the beginning of the rainy season it became necessary to provide more substantial accommodations in lieu of the tents, and by authority of the Bureau sufficient material was purchased to complete a small hospital, located on the point northeast of the reservation. This hospital will accommodate six persons, the plan of which I herewith inclose.

It was found by experience that the point of land on the southeast was too much exposed to the winds and was consequently illy adapted for the treatment of smallpox or plague cases. Representations to this effect were made to the War Department, and permission was granted to make use of a ravine about one-fourth mile from the reservation, which is more sheltered and at the same time almost inaccessible save by water. A sufficient space has been inclosed by a barbed-wire fence for accommodations for 24 patients. Tents will be made use of until temporary buildings can be erected. This ravine has been repaired for the treatment of cases of plague. If I am correctly informed, Surgeon Carmichael had the latter site in view, but for some unexplained reason could not obtain permission for its use.

The wharf, which was sadly in need of repairing, has been put in first-class condition, and a substantial bulkhead of creosoted timber erected along its inner side and the washed-out portions contiguous thereto filled in.

The disinfecting shed, authorized at a cost of $1,840, has been completed. It is located on the main portion of the wharf. The dimensions are 26 by 100 feet. It has answered an admirable purpose during the past season, but it is to be regretted that this shed could not have included the whole of the main wharf, as it is not nearly large enough. It is hoped that the new appropriation authorized by the last Congress will soon become available for the completion of the shed, so as to provide a place for repacking and storing disinfected baggage. This is of equal importance as the present shed for preparing baggage, etc., for disinfection. The balance of the appropriation from which the disinfecting shed was built amounted to $383—not sufficient to construct covered passageways from the disinfecting shed to the disinfecting house. According to recommendation, the Bureau granted authority to purchase lumber and necessary material for the construction of covered passageways from shed to bath and disinfecting house, to erect a shed 16 by 72 feet alongside the disinfecting house, and provide additional bathing facilities. Orders have been placed for the materials, and as soon as received it is proposed to make these additions with the force of the station.

A shed has also been erected on the south side of the disinfecting house of 12 by 34 feet dimensions, which serves the purpose of a dining room for the Asiatic steerage passengers. Previous to the erection of this shed the Chinese took their meals in the open air, ofttimes in a pouring rain. The pump house, located near the laundry, had before my arrival been abandoned and was then being used as a blacksmith shop.

This house was put in order, one room being converted into a storeroom and the other a lamp and oil room.

A space just above and in the rear of the Chinese barracks has been cleared of a dense growth of trees and sage brush and inclosed by a barbed-wire fence, and this space further divided into compounds.

Two cabins of 8 by 10 feet dimensions have been erected in a compound. These serve the purpose of a hospital for suspicious cases until the diagnosis is determined; after which the cases can be removed to the noncontagious or contagious hospitals, as the case may demand.

Adjoining these suspect cabins is a small laboratory building of 12 by 14 feet, and animal house of 10 by 14 feet. This arrangement is well adapted for making accurate diagnoses of the cases, as well as to have the laboratory completely isolated from the rest of the station.

Great difficulty was experienced in policing the station when persons were detained in quarantine, and more in particular when two lots of steerage passengers were brought to the station on the same day, where it was desirable to keep them separate. It was found next to impossible to do this with the small number of attendants, and it became necessary to make some other provisions. Accordingly a fence 8 feet high was erected around the two sides of the free end of the wharf, and between the disinfecting shed, bath house, and the disinfecting house. Another was between the disinfecting house and the new bath house. On the top of each fence was placed an arm which extended at right angles about 4 feet. To this arm was strung barbed wire 6 inches apart. After a thorough trial I can state that it is one of the most effectual devices for keeping persons where you put them. No person, however so agile, has succeeded in scaling these fences. It has rendered the task of policing very easy indeed. Barbed-wire fences 8 feet high, with wires 6 inches apart, provided with the overhanging wires, have been built around the Chinese and Japanese barracks, the two hospital reservations, the suspect cabins, and the laboratory.

On account of the unusual drought, which practically has done away with the water supply, the station had been depending on the quartermaster's department for fresh water to be brought from San Francisco. During the past year the steamer *McDowell* made two trips weekly, delivering 36,000 gallons. This amount was scarcely enough for the ordinary needs, and precluded the use of fresh water for bathing, as it often required 20,000 gallons for bathing the Asiatic steerage and disinfecting the effects of a vessel. It was determined to use salt water for the baths, and with an expenditure of less than $100 a salt-water supply was introduced in each bath house, and since the early part of this year salt water has been employed for bathing all the Asiatics. It appears to answer as well, if not better, than fresh water, as it lessens the time for cleansing. The salt-water soap appears to have a greater affinity for dirt than the ordinary soap.

Considerable amount of grading has been accomplished during the year at such times as the attendants could be spared from other duties. The roadway leading from the wharf to the executive building has been graded preparatory to being macadamized. A new road has been built along the ravine to the military road. The old road from the station to the post had become dangerous on account of landslides and washouts.

The ground around the wharf and buildings has been graded and drained and is now ready to receive a surfacing of concrete or bituminous rock, whichever may be decided upon.

The ditches and drains have been kept open, new ones made where necessary and so far there have been no landslides.

The bluff which terminates in the rocky point just in the rear of the wharf has been blasted away, and a sea wall has been constructed out to the point, which is wide enough to make a good roadway.

A space has been reclaimed large enough for a stable, as well as to prepare a place for a crematory. It is now possible to dispose of the garbage and other refuse of the station at the point, where a swift current carries it away. A crematory has been erected at the point for the incineration of bodies. It is operated by crude petroleum. By means of a special burner it is believed that the cost of operating with oil will be less than by coal. The crematory completed cost less than $250.

The disinfecting machinery of the station needs a thorough overhauling; it should be modernized and brought up to a proper standard. The steam disinfecting chambers are in a structural sense in good repair, but on account of their peculiar construction it is almost impossible to do good work with steam without damage to fabrics and articles of personal wear.

The vacuum apparatus is quite sufficient. A vacuum of 20 inches usually can be obtained within less than two minutes.

There were no cars or other means of preparing clothing and bedding for disinfection—not even a rack. A small railway track and turntables had at one time been provided, but was for some reason done away with. So far as I can ascertain from the records of the station, no cars had ever been provided; this may explain the reason for doing away with the track. When it became necessary to disinfect the belongings of the Thirty-first Regiment poles and racks were improvised, which answered fairly for body clothing and the accouterments. This arrangement was also used for the Forty-eighth Regiment, and has to some extent been used for the effects of passengers subject to quarantine.

When a quarantine was enforced against the Hawaiian Islands on account of bubonic plague it became apparent that something else besides the crude devices for disinfection of the personal effects of passengers was necessary. One hundred folding wire baskets were purchased for the purpose. These have answered admirably for the disinfection of articles which are subjected to the formaldehyde process as well as for the disinfection of the mails.

The steam chambers should be remodeled as soon as practicable, and be provided with car tracks and transfer tables. The small disinfecting chamber purchased for the *Omaha* is entirely too small. A chamber of at least 60 by 12 feet should be substituted for it. This small chamber best needs to be placed at the station, where it would serve an excellent purpose for disinfection of a few articles of clothing or bags of mail, which frequently require it. It would be economical as well as expeditious to have this disinfector installed at the station. At present time it has been placed at the disposal of the San Francisco board of health.

New formaldehyde retorts of a different model, but on the same principal, have been substituted for the old ones which had become worn out.

Two new boilers have been installed in the disinfecting house, one additional and a larger one to replace the small one used for pumping purposes. The old boiler has been repaired and put in good order. The three boilers will now furnish sufficient steam and power for disinfecting purposes. They are not the kind, however, which will give the best results for work of this character. A battery of at least three boilers of the horizontal type should replace these. The amount of coal which is wasted by the upright boilers would in a short time pay for the additional expense for their purchase and installation.

Three of the buildings have been painted and arrangements have been made to continue the work until all the buildings have been painted. It is expected that this can be done before the rainy season sets in.

The surgeon's quarters have been furnished throughout, a hot water heating apparatus installed in the cottage building which was used for quarters until the other quarters were occupied.

Considerable repairs of a minor nature have been made to the buildings and the plumbing sufficient to keep them in a fair condition of repair. More would have been accomplished had there been time available from other work.

VESSELS.

The boarding tug requires considerable repairs. Authority to advertise for proposals for repairing the vessel has been received just at the close of the fiscal year, too late to be included in this report. As previously mentioned, the tug is not adapted for boarding purposes. A new boarding vessel is required.

The launch *Bacillus* has had a number of repairs made to it during the past year. The boiler has on several occasions sprung a leak, necessitating new tubes. It is unfortunate that the parts and supplies of the boiler can not be obtained here, and can be had only from the maker. On several occasions when the boiler broke down it had to be kept out of commission for several days until the necessary parts were received from the maker. When the launch was repaired the last time a hatch was made on the deck just over the boiler, so that it can be removed if necessary to repair it. This will render it possible to make many of the repairs at the station, and will not only be a saving in time, but economy as well.

During the time when the Hawaiian Island fleet was placed in quarantine arrangements were made with the State board of health for the temporary loan of the State quarantine tug *Gov. Perkins*, to be used in transferring crews and their effects of the vessels to and from the station, as it was too great an expense for the vessels to keep a tug for this purpose. After a week's use a peremptory order was received from the governor to turn the vessel over to the board of State harbor commissioners, which was immediately done. I was informed subsequently that the reason for such action being taken by the governor was on account of a protest from one Dr. I. E. Cohn, the ex-State quarantine officer. As soon as the tug was turned over to the harbor commissioners negotiations were begun which resulted in the charter of the tug *Perkins* for $75 per month, including the services of a deck hand. This vessel is still employed, and serves well as a reserve boat in case the *Sternberg* breaks down, or when it is necessary to put the vessel out of commission temporarily for overhauling machinery and cleaning the boilers.

The hulk *Omaha*, which has been anchored in the bay near San Quentin, about 5 miles distant, was on December 24 last removed and anchored just off California City, about 1½ miles distant from the station. Arrangement was made with Captain Seebree, in charge of the light-house district, to have the light-house tender lift the anchors. The towing was done by tugs of the transport service of the Pacific Mail Steamship Company; all without expense to the Service. The hulk is anchored in 12½ fathoms of water, the anchors well spread diagonally across the current, so that they will not foul. Bringing the hulk nearer the station has not only facilitated the disinfection of vessels, but has been of great advantage to the shipping. The hulk is considerably weather beaten and needs painting; otherwise the vessel is in fair condition.

A new sulphur furnace has been authorized to replace the old one now worn out, and is ready to be installed.

The bichloride tanks and pipes have been changed, so that the pumps, boiler, tanks, etc., are all under observation. An overflow valve has been attached to the discharge pipe, so that the bichloride spray can be controlled at will without stopping the pump.

A new duplex pump should replace the present single-acting one, which is about worn out.

One hundred and twenty-eight cotton mattresses have been purchased for the bunks of the *Omaha.*

When the wharf was repaired ways for hauling out the launch were built from lumber on hand for the purpose, the contractor driving the piles for it. The ways extend from the shore end of the short arm of the wharf. The hoisting is done by means of a steam winch, which has been fitted up for this purpose.

A small engine lathe, grinding machine, and rock breaker have been purchased and put in operation.

A gasoline engine was borrowed from the marine hospital, and has been used for driving the lathe and grinder. This engine has proven to be almost indispensable. It is recommended that it be permanently transferred, provided it can be dispensed with at the hospital; if not, a new one should replace it.

The personnel of the station consists of 3 commissioned officers, 5 medical officers (including an inspectress), 1 hospital steward, 31 attendants, of these 13 are temporarily employed. The temporary employment of 13 additional attendants was made necessary by reason of the fact of the great amount of work devolving on the station on account of the returning troops from the Philippines and the appearance of plague in the Orient. It is believed that the number of attendants now employed can not be reduced much before the troops return from the Orient. Should plague again appear in the Hawaiian Islands and continue at other places, the force may have to be increased rather than diminished.

RELATIONS WITH THE STATE AND LOCAL HEALTH AUTHORITIES.

It is a well-known fact to the Bureau that ever since this station has been established the State quarantine officials have claimed priority in the right to govern it. In consequence the relations between the State and city officials and the national quarantine officer have been strained, and oftentimes more or less friction has resulted in the discharge of his duties. Since the assumption of full powers over the quarantine by the National Government the situation has become more acute and on several occasions has resulted in an open rupture. Attempts on several occasions have been made by the State quarantine official, aided and abetted by the San Francisco board of health, to reestablish his prestige by having a suit brought in the State courts. In the matter of the steamship *Gaelic*, wherein the master and pilot were arrested on the charge of an alleged violation of the State law, section 3019, political code. They were accordingly fined in the police court, but on appeal to the superior court the decision was reversed, as will be seen in the following:

"PEOPLE *v.* WM. FINCH.—PEOPLE *v.* F. W. JORDAN.

"These two cases were brought by the people of the State of California against William Finch, master of the steamship *Gaelic*, and F. W. Jordan, a pilot of the bay of San Francisco, who was bringing the ship into port. The vessel was boarded by the Federal quarantine officer, Dr. Rosenau, who gave the master a clean bill of health. Shortly thereafter the vessel was boarded by the local quarantine officer, Dr. Chalmers, who demanded an inspection of the ship's papers, which was refused by the captain. He thereupon demanded an inspection of the quarantine certificate issued by the Federal officer, which was also refused. He thereupon forbade the pilot, under penalty of law, to bring the ship to dock, to which the latter replied that he was acting under the orders of the master. The master then instructed him to bring the vessel to dock, and he did so against the remonstrance of the local officer.

The master and pilot were arrested and the two cases heard together in the police court of the city and county of San Francisco. The presiding magistrate found them guilty, and ordered them to pay a fine of $10 each, which they refused.

An appeal was taken to the superior court of the same city and county, and was there submitted to the three judges presiding in the criminal departments of that tribunal, sitting in banc.

After elaborate arguments on both sides, and after very careful consideration of the cases, the same were reversed and the charges ordered dismissed on the grounds that, as the President of the United States had by proclamation appointed a Federal quarantine officer for the port of San Francisco, and as the local laws did not attempt to carry out quarantine as prescribed by the laws of Congress of February 15, 1893, the authority of the Federal officer was exclusive, and the local officer could not interfere in any way.

This decision was undoubtedly largely based upon the decision of the United States Supreme Court in the case of Morgan's Railroad Co. *v.* Louisiana Board of Health, 118 U. S., 464, where the court says: "It may be conceded that, whenever Congress shall undertake to provide for the commercial cities of the United States a general system of quarantine, or shall confide the execution of the details of such a system to a national board of health, or to local boards, as may be found expedient, all State laws on the subject will be abrogated, at least so far as the two are inconsistent."

I have not fully mastered the intricacies of the State laws which establish the State and local boards of health. So far as I have been able to ascertain the power of appointing these is vested in the governor, who must appoint a new board each for the State and city and county of San Francisco every five years. This latter board appoints a quarantine officer. Soon after assuming charge a new board was appointed, and incident thereto a new quarantine officer was appointed to succeed Dr. Chalmers. Soon after this the local press, irrespective of political affiliation, began to publish attacks on the board, charging it with all manner of evil intention. As all this was supposed to be only a local affair, little or no attention was paid to these criticisms, until I saw that Dr. I. E. Cohn had been appointed as the quarantine officer.

On July 1 the new board began its work by confirming the charges of the press of its intention by declaring a large number of places vacant, and by appointing to these places persons in harmony with its views and intentions. On June 17 I received a call from Dr. Cohn, who stated as introductory to the interview he sought that he was "the new quarantine officer for the port of San Francisco, just recently appointed by the governor."

* * * * * * *

He seemed to be impressed with the idea that the Federal quarantine should cooperate, aid, and assist him (Cohn) in being quarantine officer, and stated he was now ready and willing to perform all the duties of the quarantine, and to carry out those in particular which his predecessor failed to do. The character and kind of cooperation and aid which he desired the National Government to extend was for the Marine-Hospital Service to retire to Angel Island and conduct the station as it had formerly done under the State law, until the scheme now on foot, * * * to purchase the quarantine station from the Government and then conduct the quarantine as a State affair, which in his belief was the only way that quarantines should be conducted. Dr. Cohn was politely informed that the attitude of the officer detailed as quarantine officer would be to simply enforce the regulations under the law of 1893, which under these circumstances were held to be paramount to any existing State laws; that it would be his aim and purpose to carry out the provisions of the law, after which it was immaterial to him what action was instituted by the State authorities.

The attitude of the city board of health toward the quarantine is best set forth in the following extract from the official proceedings of the city board, at its special meeting held May 3, 1899:

"The regular meeting of the board of health is held on the third Wednesday of each month. Meetings during the month of May: May 3, 17, and 29, 1899.

"Special meeting, Wednesday, May 3, 1899.

"Special meeting held Wednesday, May 3, 1899. Dr. John M. Williamson presided.

"The preliminary routine business having been concluded, the presiding officer announced that the object of this meeting is to discuss and take action concerning those cases of smallpox which, through inefficient Federal quarantine service, have been permitted to invade the city, and he called on the health officer for a statement in that behalf.

"The health officer stated that he was informed by the quarantine officer of this board of the rumors regarding smallpox on the United States transports *Centennial* and *Sherman*, and that, in company with said quarantine officer, he at once investigated the matter. The *Centennial* was first visited, and, after a thorough examination of ship and crew no reason was found why said ship should not dock, no illness having developed upon her during the past twenty-four days. The health and quarantine officers were fortified in this view by the affidavits of the master of the ship, which covered the period that had elapsed since the departure of the ship from Nagasaki, Japan, on April 9, 1899, and developed a remarkable laxness in the methods pursued by the Federal quarantine officer, who boarded the vessel upon her arrival, but could not vaccinate all the crew because he was not supplied with sufficient vaccine points, and yet, notwithstanding this, he issued letters of pratique and permitted the ships to dock, allowing twenty-six hours to pass before sending an assistant to complete the work, during all of which time communication was maintained between the ship and the shore. Letters were then issued to said ships by representatives of this board. The health and quarantine officers of this board next visited the *Sherman*, but found nothing in the ship or crew which indicated the presence of contagious disease. They learned, however, quite accidentally, that a case of smallpox had developed among the ship's passengers after the Federal quarantine officer had issued his letters of pratique, and that the patient had been transferred to the army hospital at the Presidio. Letters of pratique were refused to the ship, and the representatives of the board proceeded to the army headquarters in the Phelan Building. Here they met Major Matthews, of the army hospital service, who made to them an official report of the case of smallpox from the *Sherman's* passengers, and who further reported that the patient, with 14 other passengers who had been exposed to the disease, had been removed to Angel Island, where they could be easily isolated. It further appeared that the Medical Department of the United States Army had become so deeply impressed by the extreme gravity of the situation, that it had at once ordered the *Sherman* back to the quarantine station. The health officer then concluded by asking the board to fix the time at which they would allow the vessel to be docked.

"The affidavits of Capt. G. H. Pierce, master of the transport *Centennial*, above referred to, were read by the secretary.

"The quarantine officer of this board then related his investigations in this matter, made in company with the health officer, and fully corroborated the statements of that official. He added, also, that, by reason of Federal interference, he had not been permitted to inspect the transport *Sherman*, or her bills of health, prior to her docking, she having been sent to Angel Island instantly upon her arrival. He wished to be informed by what authority the Federal authorities were permitted to shift the ships for quarantine purposes, after having once issued letters of pratique.

"The health officer then insisted upon the absolute right of this board, as illustrated by the case of the mail steamer *Doric*, to remand the ship to the quarantine station until all danger of infection was wholly removed, and asked the board to fix a probationary period during which the ship should be confined without the quarantine ground.

"It was thereupon moved by Dr. Fitzgibbon, duly seconded by Dr. Baum, and unanimously carried, that the United States transport *Sherman* be detained in the stream within the quarantine station for the full period of sixteen days, and that, pending that period, said transport should be thoroughly fumigated under the supervision of the board of health before being permitted to approach the docks.

"It was then suggested by the quarantine officer of this board that this board adopt a resolution prohibiting the docking of any vessel not having letters of pratique from the board or its official representatives. This suggestion was indorsed by the health officer, who announced that it met with the approval of the board of State harbor commissioners. The presiding officer, Dr. Williamson, then declared that this matter should be brought to a focus. He thought that a grave responsibility rested upon this board to protect the people of this city from contagion. He regarded the jurisdiction of this board in controlling every vessel approaching the docks as clearly established by the flagrant case of the *Doric* during the last smallpox scare, and announced the sentiment of the board to be that its rights in this behalf should be strictly enforced. He emphasized his remarks by pointed allusions to the spiriting away to Angel Island of a smallpox patient by the Federal quarantine officials, under cover of night, from the *Doric* while that ship was fast to the dock; he criticised the partial and incomplete vaccination of the crew in this present case of the

Centennial; he pointed out the dangers to the city from the smallpox patients in this present case of the *Sherman*, and he declared that a candid review of the situation impressed him with the eminent propriety of the suggestion of the quarantine officer.

"It was thereupon moved by Dr. Baum, duly seconded by Dr. Fitzgibbon, and unanimously carried that the quarantine officer of this board be instructed to exercise the strictest vigilence in enforcing the quarantine laws and regulations of this State and city and county and board, and that he permit no vessel to dock in this city and county unless it shall have first obtained letters of pratique from the board or its official representative.

"The quarantine officer of this board then criticised the Federal quarantine officer for his delay in vaccinating the people of the *Centennial* and for having granted letters of pratique to that ship before completing his work, and for his conduct in relation to the *Sherman;* and suggested that the cooperation of the State board of health should be sought in this emergency; and asked this board to confer with the State board in this behalf." * * *

I have, so far as I have been able, investigated the charges made against the quarantine officer, but have never obtained any information more definite than rumors, notwithstanding I have demanded of those making the charges the names of cases which, it has been alleged, contracted smallpox from the soldiers or their effects. The only statement which has any color to it is that "a collector, who works along the water front, had contracted smallpox." On the other hand, it has been stated on good authority that a discharged soldier from Arizona introduced smallpox, as this man came from some place in Arizona (Prescott, I think), and on the day after his arrival the eruption appeared. The 30 cases then existing have all been traced to this one case.

On June 23 I received word from Surgeon Carmichael, stationed at Honolulu, that the Japanese steamer *Nippon Maru* was then detained in quarantine on account of two cases of plague which had occurred between Hongkong and Honolulu, and suggested that the vessel be given a most rigorous inspection. On the morning of the 27th the vessel arrived, and was given a thorough inspection by myself and Dr. Mathewson. No disease of a contagious character was found, but on account of the vessel's previous history and the noncompliance with the regulations it was deemed best to place the vessel in quarantine. While I was superintending the transfer of the cabin passengers to the station Dr. Cohn came on board, notwithstanding the yellow flag was hoisted from the forepeak, and made a cursory and perfunctory examination, after which he took the ship's surgeon on board his launch and brought him to the station, despite the fact that I had given positive orders for no one to leave the ship. He (Cohn) is reported to have said that "the placing of the vessel in quarantine was nothing more nor less than an outrage," and that he "would give the vessel its pratique on the following day." On the advent of Dr. Cohn at the station he was informed that under the quarantine regulations he would not be allowed to land, but information regarding the sanitary condition of the passengers and the vessel would be cheerfully given. He was at this time informed that he had violated both the quarantine and customs regulations when he went on board a vessel flying the quarantine flag, and also in taking off any person from the ship before pratique had been given.

On making my inspection in the afternoon of the steerage passengers and the crew, 11 Japanese stowaways were found whom the officers of the ship professed not to know anything about. The captain stated that these stowaways had evidently been hidden away by members of the crew, with whom the Japanese officers were in collusion. These stowaways were in good health and ate bountifully that evening. On the afternoon of June 28, when the steerage passengers and a majority of the crew were transferred, 2 of the stowaways were missing. No one, not even an officer, knew anything about them. The evening Bulletin and Post contained an article describing the escape and drowning of 2 Japanese who were found on this morning near Fort Point. Both bodies had life preservers strapped to them, each marked *Nippon Maru*. I was still puzzled to account for the disappearance of the stowaways, as the customs guard patrol had not observed anyone escaping, nor was it considered possible for anyone to attempt to escape when the vessel was anchored off shore more than 1¼ miles. The bodies were reported to have been found about 9 o'clock in the morning. Late in the afternoon the station received a visit from Dr. Chalmers, the retiring State quarantine officer, and a Dr. Coffey, who stated that he was a member of the city board of health, and that he came for the purpose of demanding the privilege of inspecting the passengers and crew of the *Nippon Maru*. This demand was politely, yet firmly, refused, but was coupled with the statement that while I was personally always glad to extend a professional courtesy, this must always be in conformity to the law and regulations; if privilege of a professional nature was desired he should have made his application to the Supervising Surgeon-General, who would doubtless direct me to extend to him the privilege under such sanitary restrictions as I might deem necessary. This course of action was not satisfactory to either of these gentlemen, whose purpose was evidently anything else than the stated object of their visit. After abusing all my predecessors and superior officers in terms which can not be printed, mention was made of the 2 Japanese who were found drowned in the morning, who, Dr. Coffey stated, evidently had died of bubonic plague, and that they were now under examination. The parting shot was when these gentlemen stated that the sole object of their visit was to obtain evidence for a test case soon to be instituted in the State courts to define the status of the State quarantine officer and thereby relegate the Government quarantine to its proper place; that is, subordinate to the State. This terminated the interview.

On the same day, as soon as I heard that the 2 bodies had been found, I telegraphed to Surgeon Gassaway, asking if he would call on the city board in my behalf and request that specimens removed from these bodies, particularly portions of the glandular tissue, be sent me for an examination. After the interview had with Dr. Coffey, I deemed it wise to be on my guard against duplicity.

On the afternoon of June 29 the disinfection of the steamer *Nippon Maru* was completed, a new crew having been furnished, all the old crew having been taken to the station; the vessel was given its discharge (as having complied in all respects with the law and regulations), and delivered over to the agent. On going over to the berth in the city to inquire for any mail or message from Surgeon Gassaway, I found a letter from Health Officer Lawler awaiting me, which is as follows:

HEALTH DEPARTMENT OF SAN FRANCISCO, CITY HALL,
OFFICE OF THE BOARD OF HEALTH,
San Francisco, June 29, 1899.

GENTLEMEN: In view of the fact that this Department has under examination by the bacteriologist the glands taken from the 2 Japanese recovered from the bay yesterday, to ascertain if there are any signs of the plague in connection with them, I most earnestly request that the vessel be not allowed to dock until this examination is made, and satisfactory to all in interest.

Very truly, yours,
WM. M. LAWLER,
Health Officer.

The SURGEON IN CHARGE OF MARINE-HOSPITAL SERVICE,
San Francisco.

I immediately sent the following reply:

NATIONAL QUARANTINE,
Angel Island, Cal., June 29, 1899—7.05 p. m.

DEAR SIR: I have the honor to acknowledge the receipt of your letter of this date, which has just been delivered to me, and in reply would state that I had given the vessel pratique about two hours before, as it had complied with all the regulations prescribed by the Secretary of the Treasury relative to the disinfection of vessels. The passengers and crew are now undergoing their detention.

Respectfully, yours,
J. J. KINYOUN.
Passed Assistant Surgeon, M. H. S., Quarantine Officer.

Dr. WM. M. LAWLER,
Health Officer.

On the morning of June 28 the campaign against the Federal quarantine was begun in earnest by the city board of health. This same day was again rendered memorable by an announcement from the city bacteriologist that "the examination of cultures from the glands of the drowned Japanese revealed the presence of bacilli resembling those of bubonic plague." The bacteriologist was satisfied as to the character of these germs, but owing to the great danger of handling the cultures, not having facilities in the city laboratory for further experiments, the board (Dr. Coffey) directed that they be immediately destroyed.

In accordance with the above-mentioned incidents quarantine was declared against Angel Island, the quarantine officer in particular, as well as those connected with the boarding steamer *Sternberg*. Orders were issued by the city board, through its health officer and quarantine officer, to arrest anyone from the steamer *Sternberg* or from Angel Island. As it was not the purpose of the Federal quarantine to endanger the safety of San Francisco or the country at large, it had already taken the precaution to maintain a strict quarantine over both the station and the boarding tug by issuing orders to this effect.

On July 1 the revenue cutter *The Golden Gate* put in an appearance at the station, having on board Surgeon Gassaway and Drs. Coffey and J. H. Barbat, these latter being members of the board of health. Surgeon Gassaway explained the object of their visit was to see if an amicable arrangement could be arrived at "by which the hatchet could be buried." I immediately disclaimed all animosity, and declared that I was not aware that any ill-feeling existed, and therefore could have no hatchet to bury.

Dr. Coffey, who appeared to be the spokesman, immediately opened a tirade against the Marine-Hospital Service, and against the Supervising Surgeon-General in particular. He dwelt long and loud upon the underhanded methods by which the status of the quarantine had been changed, and particularly on the machinations of my predecessor and Supervising Surgeon-General in bringing this about. It was stated by him that the San Francisco board of health had been totally ignored in the matter of quarantine, and now had no power of knowing officially when a vessel arrived at this port or what was the condition of the passengers and crew. The board of health did not intend further to be ignored by the Marine-Hospital Service, and were going to institute such action as to make its influence felt; that this was the second time that the health of San Francisco had been menaced by the laxity of their quarantine officers. In the first instance, smallpox prevailing in the city was directly traceable to the army transports, and now they were menaced by the bubonic plague.

As to the allegations relative to smallpox, I stated at the time that so far I had not been able to trace the cases to the transports, and since Dr. Coffey had made the direct charge, I would be more than obliged if he would state the proofs upon which he based his statement. This he could not do.

In the second place, I could state that San Francisco, and incidentally the United States, had been in no wise menaced by the quarantine procedures. He immediately interrupted me with the statement that the quarantine should go where it properly belongs—to the people of San Francisco—and not to be intrusted to persons who were appointed for life and had no love for the people. I informed these gentlemen that no such statement could be made in my presence without being resented. As I had been placed here to guard the sanitary interests of the people of the United States, of which I had considered until now those of San Francisco formed a part, I would only half discharge my duty if my efforts were directed only to San Francisco. The Marine-Hospital Service certainly had higher standards in sanitary matters than the one which is stated by the San Francisco board of health. Both Drs. Coffey and Barbat stated that they were more than satisfied that the cases of the Japanese found drowned were infected with bubonic plague, and that the germ had been isolated. They further stated that the bacteriologist had reported to them the exact steps which he had followed in isolating the organisms and the reasons for his conclusions. It was remarkable, indeed, that in less than twelve hours after the examination had commenced it was possible to isolate the organism of bubonic plague and establish its identity beyond question. I took occasion to remark that it appeared to me next to impossible to arrive at a diagnosis in so short a time, unless new methods had been discovered than those which the scientific world was cognizant of at the time when I had investigated the subject of plague. How a positive diagnosis could be made within so short a time, and without animal inoculation, was beyond my comprehension. At this juncture I was handed by Dr. Barbat a small package purporting to be specimens taken from the cases which his brother had seen fit to send me in compliance with my request for material. It was stated to Dr. Barbat that it was unfortunate that portions of tissue could not have been sent, or in lieu thereof cultures made from the tissue for a basis of my examination. In view of their statement that they had no facilities for carrying on complete examination in their laboratory, it was remarkable that they did not avail themselves of the facilities of the laboratory of the station, which my predecessor, Dr. Rosenau, offered their honorable body as long as two years ago, which fact was not unknown to this board. They replied that the board was fully satisfied as to the correctness of the diagnosis, and had given orders for its bacteriologist to destroy all materials and cultures. Fortunately the interview which took place was in the presence of Surgeon Gassaway and Captain Tuttle of the Revenue-Cutter Service.

In order to set forth more clearly the circumstances leading up to this report, I inclose a letter from Surgeon Gassaway relative thereto:

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
San Francisco, Cal., September 5, 1899.

Surg. J. J. KINYOUN: My recollection of the board of health's action in the "bubonic plague matter," so far as it came to my personal knowledge, is this: The daily papers on June 30 gave the startling news that the board of health had found the bacilli of bubonic plague in the tissues of the two drowned Japanese from the steamer *Nippon Maru*. The same day Dr. Kerr telephoned me your request that I would get for you some of the specimens, or slides, or both, for your examination. I immediately telephoned the board of health office, asking a specimen and slide, which request was received by a clerk, the board not being in session, who told me he would lay it before the board at its meeting that evening. Next day, Saturday, July 1, I went to the board of health office about noon and found the board had just adjourned. I asked for and presented my card to the health officer, Dr. Lawlor, who received me very courteously and introduced me to each of the board. He informed me, however, that the board had unanimously and positively declined my request for specimens, stating that the board had received only discourtesy and worse from the Federal quarantine officials, and that the board would not only refuse to grant such requests, but they would put in the pesthouse of the city and county hospital anyone caught in the city from the United States quarantine for fourteen days. However, I pleaded our cause with so much conviction that the bacteriologist, Dr. J. Henry Barbat, presently withdrew and in a few minutes returned with a couple of microscopic slides nicely done up in a little wooden container, which he wrapped up in paper and gave me with his compliments. Thereupon the board dissolved for lunch. Dr. Barbat, the brother of the board microscopist, and another member of the board and myself then started to deliver the slides to you, which we did by riding down to the wharf in my ambulance, thence per the revenue cutter *Golden Gate*, on which we lunched with the officers, and presently arrived at your station, or rather near it, where I delivered the slides to you and heard these two gentlemen give you in detail the method by which their slides were made, and also declare that they were made by the bacteriologist of the board from the glands of the two drowned Japanese from the steamship *Nippon Maru*. We, after some discussion with you, returned.

A day or two after that day I was surprised to find a story going the round of the papers that the specimen slides which you had declared failed to show the bubonic plague bacillus were declared by the board of health people to be some which had been sent them by Kitasato himself, of cultures made in Japan of cases of the plague, and that your failure to find the plague bacillus was proof positive of your incompetency. I was the more surprised as Barbat, the bacteriologist, Barbat, his brother, and the other members distinctly said these slides were made by Barbat, microscopist, from the plague-stricken Japanese found drowned.

As a corollary, I send herewith a copy of the official report of the board of health meetings for June, 1899, which will show: (*a*) That the pesthouse was acknowledged to be dangerous to life; (*b*) that Dr. Chalmers is Dr. Chalmers; (*c*) that the official bacteriologist found bacilli of bubonic plague; (*d*) that if you leave (or had left, rather) the "quarantine station" (this means your quarantine station under supervision of their quarantine officer) you will be (or would have been) in the damp pesthouse for fourteen days.

Yours, etc.,
JAMES M. GASSAWAY.

Dr. J. J. KINYOUN, *U. S. M. H. S.*

After giving the specimens a careful examination there was only one conclusion that could be arrived at, and that was that the culture was not that of bubonic plague or anything resembling it, as it was one of the streptococci resembling that of pneumonia. The preparation was stained with gentian violet, and gave evidence of its being a fresh preparation, as the balsam holding the cover slip to the slide had hardly dried sufficiently to keep it in place.

On July 3 I addressed the following communication to Drs. Coffey and Barbat:

JULY 3, 1899.

Drs. W. B. COFFEY and J. H. BARBAT,
Of the San Francisco Board of Health San Francisco, Cal.

GENTLEMEN: In acknowledging your visit to the quarantine station on the 1st instant, made with reference to the case of the two Japanese found drowned on the 28th instant in their attempts to evade the immigration laws, and also with reference to a bacteriological examination of specimens taken from these bodies, I would say that I have examined the specimen bearing the legend

Dr. Barbat.
Japanese.
Nippon Maru.
6-30-99.

Bacteria.
Balsam.
Bacilli.
Methyl Blue.

very carefully, and that it does not resemble the bacillus of bubonic plague. Morphologically it is a diplococcus resembling that of pneumonia. I regret that your board saw fit to deny my request for material and cultures (submitted by Surgeon Gassaway), wherewith I should have been able to determine the exact character of the bacteria by culture method and inoculation experiments.

I am not a little surprised that this should have been done after your bacteriologist reported adversely against the inoculation experiments being undertaken in your laboratory on account of the lack of facilities, when it was a well-known fact to your board that there was at this station a fully equipped laboratory for this particular purpose.

I would state further that I have never been able to isolate the bacillus of bubonic plague from suspected material in as short a time as is announced by your bacteriologist. Even after this is done the exact character of the bacteria could not be determined without inoculation experiments.

Respectfully, yours, J. J. KINYOUN,
Surgeon, M. H. S.

After the *Nippon Maru* had been disinfected in accordance with the quarantine regulations, a new crew having been furnished, the vessel was released from quarantine and allowed to be towed to the city. On its arrival at the dock, the health officer, Dr. Lawler, acting under orders from the board of health, had the new crew placed under arrest and kept them on board, together with one or two police officers. He then ordered the vessel towed amidstream. The following day, about twenty-four hours afterwards, the agents concluded that in order to save time for the vessel they would comply with the requests of the health officer, but only under protest. The quarantine officer was then instructed by the board of health to "fumigate the vessel thoroughly." This I believe he attempted to do by means of a few pots and the formaldehyde apparatus and with chlorin. From the appearances of the cabin and some of the furniture therein one would naturally be led to suppose that thorough fumigation as interpreted by the quarantine officer would mean destruction. The agent, Mr. Curtis, informed me that the quarantine officer had damaged the ship to the extent of several thousand dollars in his clumsy and senseless attempts at disinfection without any means to accomplish it. Notwithstanding the injury done the vessel at fumigation, a bill amounting to a considerable sum has been presented by Dr. Cohn to the steamship company. Suffice to say the bill has not been paid.

After this episode affairs seem to have quieted down for a few days, and save for an occasional attack from the daily press it remained so until the morning of July 11, when I received an urgent letter from Drs. Coffey and Barbat relative to the microscopic slide which was delivered by them to me a few days ago, of which mention has already been made. The first intimation I had of this letter appeared in the daily press one day before I received it through the mails. The letter is as follows:

JULY 10, 1899.

Dr. J. J. KINYOUN,
Of the Marine-Hospital Service.

SIR: In reply to your letter of the 3d instant, I would respectfully call your attention to several facts in connection with the case. With regard to your statement that the specimen sent you does not show the presence of the plague bacillus, but shows diplococcus resembling that of pneumonia, we would inform you that Kitasato, who is the highest authority on the subject of plague, says that "the unstained middle portion gives the bacillus a close resemblance to diplococcus," and also "that the plague bacillus seems to be particularly prone to undergo degenerization if placed in artificial media. Spheroid, ovoid dumb-bells and huge rod-like forms are the most frequent of these involution forms."

With regard to the time taken by the bacteriologist of this port, we find you are misinformed. He received the glands at 8.30 a. m. and cultures within half an hour afterwards. These were examined at 12 m. Next day the growth was visible to the naked eye and was grown on glycerin agar. Kitasato says, "When cultivated on slide serum the growth of the microbe is visible after the incubation of fifteen to twenty-four hours. On agar the mode of development is naturally similar to that of serum."

The stab culture presents an appearance very much like that of streptococcus, and, as in the ends of the latter, there is no formation of the film layer over the free surface of the culture medium. You state that it is a well-known fact to this board that there is a well-equipped laboratory at the public quarantine station. We have been unable to discover any communication from you to this effect, and the health officer has not yet been sufficiently courteous to this board to invite it to examine the facilities on Angel Island.

With regard to the ability to determine the exact nature of any germ, we beg to inform you that we are fully competent to undertake any work of this kind which may come before us. Knowing from the past that any report coming from this board was willfully distorted and the facts withheld from the Surgeon-General of the Marine-Hospital Service, we instructed our bacteriologist to send you a slide of bubonic plague bacilli, which was furnished, to see if you were really able to distinguish them. Your published letter indicates that you are as liable to err as our bacteriologist, and we feel that we are justified in taking this stand that we did in order to properly protect the people of San Francisco from any possibility of bubonic plague.

Respectfully, yours,

W. B. Coffey, M. D.,
J. H. Barbat, M. D.,
Committee of the Board of Health of the City and County of San Francisco.

Had I been a novice in bacteriology and had had no opportunities for the study of the bacillus of bubonic plague or other micro-organisms, the statements made in the above letter might have been considered seriously by some. It will be seen, however, that the latter part of this letter contained statements which are in themselves admissions of the fact that both Drs. Barbat and Coffey admitted that they had intended to deceive. This added to the charges made of casting reflections on the intentions of the quarantine officer at this port and places the writers of this letter in a no enviable light, particularly when it is considered with the statements in presence of Surgeon Gassaway and Captain Tuttle, who accompanied these gentlemen on their visit to the station. These statements were in direct conflict with those appearing in the letter and were a reiteration of statements made previously to Surgeon Gassaway, as will be seen by his letter.

I was charitably enough inclined to maintain a silence about this incident, and was disposed to regard it as a grave indiscretion on the part of the writers until recently, as I believed the bacteriologist of the board of health was acting under the belief that he had made a new discovery, and by its premature announcement placed certain members of the San Francisco board of health in a peculiar position. No doubt it was the intention of the board of health to use any weapon which could be seized upon at that time for the fight against the national quarantine; and when it was determined that they had placed themselves in a false position, their attempts at extrication were discreditable. I do not believe that any statements made by these gentlemen in bolstering up their side of the case would be considered a good and sufficient evidence in establishing a reputation before any court of law. The same will obtain in the medical profession.

As to the statements that I had not been courteous enough to call upon the board: On the 15th day of June, two days before I assumed charge, I called upon the board of health at its offices in the city hall in company with Surgeon Brooks. The communication of Passed Assistant Surgeon Rosenau relative to the establishment of a bacteriological laboratory at this station for the scientific investigation of cholera and plague was sent to the board of health during his service here at the time when Drs. Coffey and Barbat were members of the board of health.

Soon after the discharge of the passengers and crew of the *Nippon Maru* considerable annoyance was caused to myself and assistant by the State quarantine officer, Dr. Cohn, coming aboard the vessel during the time of its inspection and interfering more or less with the work. These petty annoyances were patiently borne until the arrival of the transport *Warren*, when several persons—newspaper correspondents and others—took advantage of a permit given by Dr. Coffey before the inspection was completed or the vessel released. Soon after I received a letter from Dr. Coffey relative thereto, in which he admitted the facts as stated, and a day later stated to me in person that he denied my right to keep any vessel if he saw fit to give permission. I then addressed him the following letter:

San Francisco Quarantine Station,
Angel Island, Cal., August 26, 1899.

Dr. I. E. Cohn,
Care Merchants' Exchange, San Francisco, Cal.

Dear Sir: I have to acknowledge your letter of the 17th regarding the presence of certain newspaper correspondents who came on board the U. S. A. transport *Warren* before the inspection of the vessel was completed or pratique granted.

I would say that I am sorry that the incident occurred, as I was compelled to report these persons to the United States customs authorities as having violated the

Federal statutes in coming on board without authority or permission from me. My investigation, made at the time, showed that these persons, including the colonel of the regiment and ship's officers at the gangway, thought your statement, "having no objection and passing the ship," meant that permission was implied, if not given direct.

In view of the statements contained in your letter and your verbal communication made to me on the 24th instant, and in order to prevent a similar occurrence in the future, I have to inform you that it is in violation of the United States quarantine laws and regulations for all unauthorized persons to come on board or hold communications with vessels before they have been inspected and given pratique by the United States quarantine officer.

I would respectfully suggest to you that your presence on board of vessels prior to my inspection is in violation of the law and the regulations made thereunder.

I am, sir, sincerely, yours,

J. J. KINYOUN,
Surgeon, M. H. S., Health Officer.

Soon after sending this letter Dr. Coffey acknowledged its receipt in person and stated to me in person that he was at once going to bring matters to a focus; he was coming on board any and all vessels as he saw fit, and if it required a company of militia to put him on board he would have them on hand; and, further, that he would lay the matter before the governor, who would fix things. I thought it best not to temporize further, and accordingly telegraphed the matter to the Bureau and recommended that customs inspectors be detailed to act as quarantine guards and allow no one to come on board or leave the vessel until after it had been given its discharge by the national quarantine officer. Instructions to this effect were issued on the following day by the Secretary of the Treasury to the collector of customs and were immediately put into effect. This order has been enforced so thoroughly and efficiently by the surveyor of customs that it did away for once and all with further interference of the State officers at this port. The position which I assumed in the matter of boarding and inspecting and releasing vessels was that, since the President had detailed an officer of the Marine-Hospital Service as quarantine officer at the port of San Francisco, it became my duty to enforce the quarantine regulations independent of the State officials. In all my dealings with the State quarantine officer I impressed upon him that the United States claim the paramount right to board and inspect and treat vessels first; after the vessel had been given its discharge by the Federal quarantine officer the State could deal with the vessel just as it saw fit, as far as the national quarantine was concerned, as the regulations prescribed under the law of 1893 were the minimum requirements, and did not prevent a State enforcing other requirements if it was deemed necessary.

I was particularly careful not to give countenance, either by action, word, or deed, to the idea that the prerogative of the State in matters appertaining to its sanitary police was in any way interfered with. The State courts, however, have decided that after a vessel has been inspected and given its pratique by the National Government fees could not be collected for a service not performed, as will be seen in the following decision:

In the superior court in and for the city and county of San Francisco, State of California. Department No. 1. Hon. J. M. Seawell, judge.

A. P. O'BRIEN, AS HEALTH OFFICER, ETC., PLAINTIFF, v. WELCH & CO., DEFENDANTS, No. 60382.

OPINION.

This action is brought to recover the sum of $7.50, being the fee allowed by section 3020 of the Political Code to the quarantine officer for giving a permit to land freight and passengers from any sailing vessel of over 1,000 tons burden from any port out of this State.

Although the fee is payable to the quarantine officer, an action to recover it must be brought in the name of the health officer. (Pol. Code, sec. 3020.)

Defendant, which is a corporation organized under the laws of this State, is the owner of a sailing vessel named *R. P. Rithet*, of 1,019 tons burden.

On the 16th day of June, 1897, said vessel arrived in the harbor of San Francisco from Honolulu, Hawaiian Islands, carrying freight and passengers. Upon her arrival the vessel was immediately boarded by M. J. Rosenau, the national quarantine officer in charge of the national quarantine station on Angel Island, who inspected the vessel, examined her bill of health, and issued to the master a quarantine certificate in the form prescribed by subdivision 4 of Article X of the quarantine regulations promulgated by the Secretary of the Treasury of the United States.

Before the passengers or freight of the *R. P. Rithet* were discharged from said vessel, W. P. Chalmers, the quarantine officer of the city and county of San Francisco, issued to the master of said vessel a permit to land said freight and passengers.

Section 3020 of the Political Code reads as follows:

"The following fees may be collected by the quarantine officer: For giving a permit to land freight or passengers, or both, from any sailing vessel of less than five hundred tons burden from any port out of this State, two dollars and fifty cents; over five hundred and under one thousand tons burden, five dollars; each additional one thousand tons burden or fraction thereof, an additional two dollars and fifty cents; for steam vessels propelled in whole or in part by steam, of one thousand tons burden or less, five dollars, and two dollars and fifty cents for each additional one thousand tons burden or fraction thereof; but vessels not propelled in whole or in part by steam, sailing to and from any port or ports of the Pacific States or Territories, and whaling vessels entering the harbor of San Francisco, are exempted from the operations of this section."

It is claimed on the part of defendant that the section just quoted is unconstitutional for the reason that it is an attempt to impose a duty of tonnage within the meaning of section 10 of article 1 of the Constitution of the United States.

If the fees mentioned in section 3020 are allowed to the quarantine officer for merely giving a permit to land freight or passengers and for no other service, this contention of defendant would, in my opinion, be sound.

In Peete *v.* Morgan (19 Wall., 581), the Supreme Court of the United States held to be a tonnage tax, and therefore unconstitutional, the following provisions of an act of the legislature of Texas, viz:

"There shall be collected by the examining health officer from every vessel arriving at each and every quarantine station the following fees, to wit: For every vessel of one hundred tons burden or under, the sum of five dollars; for every vessel over one hundred tons burthen, the sum of five dollars, and also a further fee of one and one-half cent for each and every ton. The aforesaid fees, collected as aforesaid, shall be reported to the corporate authorities of the town or city at which said quarantine is established, and all fees as hereinbefore provided for shall be used to defray the expenses of keeping said quarantine." (Laws of Texas, 1870–71, p. 76.)

The only ground upon which the fees mentioned in section 3020 can be supported as a valid charge is that they are allowed as a compensation for services rendered. If they are imposed as a charge merely for the privilege of landing passengers or freight, they are tonnage duties within the meaning of the Constitution of the United States; but if they are a charge for services rendered by the quarantine officer in inspecting the vessel, they are not duties of tonnage, although their amount is proportioned to the tonnage of the vessel in reference to which the services were rendered. (People *v.* Roberts, 92 Cal., 659; Packet Co. *v.* Keokuk, 95 U. S., 80, 86.)

In Morgan *v.* Louisiana Board of Health (118 U. S., 455), the fee which was held by the Supreme Court of the United States to be a valid charge and not a tonnage tax was for "inspection and granting certificate." Mr. Justice Miller in his opinion says:

"In the present case we are of opinion that the fee complained of is not a tonnage tax; that in fact, within the true meaning of that word as used in the Constitution, but is a compensation for a service rendered as part of the quarantine system of all countries to the vessel that receives the certificate that declares it free from further quarantine requirements."

Section 3020 of the Political Code does not, in terms, state that the fee is charged for inspection, but merely that it is for giving the permit. It is urged, however, on the part of the plaintiff, that section 3020 should be read in connection with section 3018, which requires the quarantine officer to board and inspect every vessel subject to quarantine, and that it was contemplated by the legislature that the permit to land passengers and freight should be given only after the inspection required by the latter section. Section 3018 requires the quarantine officer to board every vessel subject to quarantine or visitation by him immediately on her arrival, make such examination and inspection of her books, papers, or cargo, or of persons on board, under oath, as he may judge expedient, and determine whether the vessel should be ordered to quarantine; and if so, the period of quarantine.

Section 3017 defines the vessels which are subject to quarantine as follows, viz:

"All vessels arriving off the port of San Francisco from ports which have been legally declared infected ports, and all vessels arriving from ports where there is prevailing at the time of their departure any contagious, infectious, or pestilential diseases, or vessels with decaying cargoes, or which have unusually foul or offensive holds, are subject to quarantine."

The powers of the quarantine officer in the visitation and inspection of vessels are not limited to those which arrive from ports where contagious, infectious, or pestilential diseases prevail, but seem to be sufficiently extensive to authorize him to board and inspect every vessel on her arrival from foreign ports to ascertain the condition of her cargo and hold and to determine whether she should be ordered to quarantine.

But, conceding that section 3020 is free from any valid objection as to its constitutionality, I am of opinion that the defendant here is not liable for the amount of the fee demanded in this action. There is nothing in the agreed statement of facts showing that the quarantine officer ever boarded or inspected the *R. P. Rithet* or examined her bill of health or rendered any service other than giving his permit for the landing of her passengers and freight. At the time when that permit was given the vessel and its bill of health had been inspected and examined by the national quarantine officer, who issued to the master of the vessel a quarantine certificate in the form provided by the regulations of the Secretary of the Treasury. As the fee charged can only be justified upon the theory of a compensation for services rendered, it can not be recovered when there has been no service.

Upon the other questions discussed by counsel—whether section 3020 of the Political Code is unconstitutional, upon other grounds, and whether the national quarantine officer has not now the sole power, exclusive of the State officer, to inspect vessels subject to quarantine and granting permits for landing their passengers and freight, I do not deem it necessary to express my opinion.

Judgment will be entered for defendant.

——— ———, *Judge.*

In January of this year the new charter of the city of San Francisco went into effect, and soon thereafter (January 8) a new city board of health was appointed by the mayor. As the charter did not specifically make provision for a quarantine officer, the board decided not to use any of the funds which had formerly been set aside for the maintenance of a quarantine service. The sudden change of policy was doubtless enforced in no small degree by the decision of the court above quoted. The fees collected by the quarantine officials from vessels had been sufficient to maintain the service, providing the necessary tug and attendants. In February Dr. L. Bazet, a member of both the State and municipal boards of health, visited the station in the capacity of a committee of one to ascertain the attitude of the quarantine officer toward the new board, and to see if it was possible to arrange a more cordial cooperation and amicable understanding than had formerly existed between the quarantine service and the boards. He was informed that as a member of the Marine-Hospital Service it would be not only a duty, but personally a pleasure, to cooperate, aid, and assist both the State and city boards of health in the enforcement of any such rules and regulations of said boards which were not in conflict or were not contravened by the United States laws and regulations. This had always been my policy in the past and would be so in the future. Dr. Bazet was accompanied by Dr. W. H. Kellogg, who had just recently been appointed as bacteriologist of the city board of health, who desired to confer with me regarding professional subjects—more in particular the plague. It was stated that at this time the bacteriological laboratory was not provided with facilities for experimental work on plague; also its location would preclude this. I called attention to the letter which Passed Assistant Surgeon Rosenau had addressed to the former board of health, wherein he stated that this laboratory was placed at the disposition of the board, and I reiterated the invitation.

Since that time my relations with the city board of health have been entirely harmonious and all that could be desired. My relations with the State body until very recently have been equally as pleasant.

Soon after, on March 7, Dr. Kellogg informed me that he had just removed some gland tissue from the body of a dead Chinaman, which he desired to examine and make animal inoculation. The laboratory was placed at his disposal with the result that the cause of death in the Chinese was bubonic plague.

Cases have occurred occasionally from time to time until May 15 there had occurred 9 deaths.

A full report regarding the cases, the quarantine, and difficulties attending the efforts of the city board of health in the enforcement of sanitary measures, as well as the judicial proceedings against the Service, will be made the subject of another report.

The year just past has marked an epoch in the quarantine of this port. Many new experiences have been gained, the repetition of which it is sincerely hoped never to occur again in the history of the quarantine service.

Respectfully submitted.

J. J. KINYOUN,
Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

CORRESPONDENCE REGARDING NIGHT INSPECTION.

The following correspondence regarding the night inspection of vessels is also of interest in connection with San Francisco quarantine, and indicates the desire of the Bureau and the medical officer to comply with all reasonable requests wherever such compliance will not involve sanitary risk.

SAN FRANCISCO, *October 31, 1899.*

Dr. J. J. KINYOUN,
Surgeon, U. S. M. H. S.,
Angel Island, San Francisco, Cal.

DEAR SIR: Steamer *Umatilla* arrived in the harbor 24th instant about 6 p. m., and was reported, we believe, coming in by the Merchants' Exchange about 3 p. m. She was not examined, however, by your department in time for the passengers to go ashore until next morning at nearly 7 o'clock. At Victoria, Vancouver, and also at Port Townsend, it is the custom to examine the vessel's bill of health and permit her entering and clearing at any hour of the day or night.

We realize that your department is exceedingly busy and at times it may be almost impracticable for you to give such prompt attention to the examination of vessels as you desire. We are writing this not to find fault with you, but to call your attention to the competition which we have to meet in the transportation of passengers and freight between San Francisco and British Columbia ports. The passengers from these ports can and do cross over from Victoria to Townsend about twice daily in a steamer that is employed between those ports and Seattle, and from Vancouver of course they pass by rail across the boundary without any let or hindrance.

Passengers arriving here or going there by rail are not delayed at all by custom or other authorities, and in order to avoid the delay and annoyance resulting from the custom of examining passengers and the occasional delay of the ship in San Francisco they come by rail.

We fully understand, of course, that you have no desire to place such embargo on vessels as to deprive them of the traffic which would naturally go to them in case they had free entry to and from the port; but we would ask that, because of the injurious effect that the delaying of the steamers has on our trade in the diversion of business from the water to the land carrier, you kindly make it a point to give the steamers as quick dispatch as possible.

If we can do anything to assist you or to make your duties less onerous, we are at your command. Asking the favor of a reply either by letter or personal interview, beg to remain,

Yours, very truly,

GOODALL, PERKINS & CO.

SAN FRANCISCO STATION,
Angel Island, Cal., November 3, 1899.

GOODALL, PERKINS & CO.,
San Francisco, Cal.

GENTLEMEN: In reply to your letter of the 31st instant relative to the steamer *Umatilla*, I would say that the vessel arrived too late to make the inspection by daylight, as is required by the regulations. There was no delay, however, in passing the vessel.

Under the regulations, promulgated April 26, 1894, I do not see how it will be possible to make an exception of your vessels, as it has been decided that the paragraph relative to vessels plying between British-American ports and those of the United States does not apply to ports similar to San Francisco. If I mistake not this same question has been raised with regard to vessels from Canadian ports arriving at Portland, Me., Boston, Mass., New York, and Philadelphia. At all the above-mentioned ports these vessels are subject to an inspection.

I fully appreciate the position of your company in this matter and hasten to assure you that all vessels will be passed as expeditiously as is possible.

It is my desire to aid commerce in every way possible consistent with the protection of the public health.

I inclose for your information a copy of the revised quarantine regulations, and invite your attention to those portions which are marked.

Respectfully, yours,

J. J. KINYOUN,
Surgeon, M. H. S.

SAN FRANCISCO, *November 8, 1899.*

DEAR SIR: With this we beg to hand you copy of a communication sent to Dr. J. J. Kinyoun, surgeon, M. H. S., Angel Island, in relation to the detention of the steamer *Umatilla*, which arrived in the port of San Francisco on the 24th instant, about 6 o'clock p. m., and was obliged to remain at anchor until the following morning, with several hundred passengers on board. The letter is self-explanatory, as is also copy of Dr. Kinyoun's reply.

As our letter indicates, we have no fault to find with the quarantine officer excepting for the detention of the ship with several hundred passengers on board at night, and he claims that under the rules and regulations of the Department he has no discretion in the matter, as those rules provide for the examination of passengers by daylight. We desire especially to call your attention to the great hardship and financial loss, by reason of these regulations, imposed upon the vessels of this company in the passenger coasting trade. These ships make the trip from San Francisco to Victoria, British Columbia, in about fifty hours, and then proceed on their voyage to Port Townsend, Seattle, and Tacoma. They run in direct competition with the railroad companies, who, as you are aware, have a rail line from San Francisco to Seattle. Passengers can now leave Victoria in the morning by local steamer for Tacoma or Seattle, and there take the cars and come through without any detention, while if they come upon the steamships that come direct from Victoria to San Francisco they are liable to be (as has been the case during the past month in a half dozen instances) compelled to remain on shipboard from 6 o'clock in the evening until 7 o'clock the following morning, at anchor in the port of San Francisco.

It seems to us that this is an unjust and unnecessary hardship, as it especially discriminates in favor of the railroads and against steam vessels. If there were any contagious disease on board the ship, under the law, as you are aware, the captain would be responsible as well as the owners of the ship if the vessel were not taken to the quarantine ground and report made to the quarantine officer. As we understand it, the object of the quarantine laws is to protect our city and State from the importation of any infectious diseases. This is not possible by passengers coming by steamer from Victoria, British Columbia, to San Francisco any more, nor as much so, as if they come by rail. The same rule applies also to our vessels plying between San Francisco and the Gulf of California.

Stringent quarantine laws in this port have induced passengers traveling from Guaymas and other ports in Mexico contiguous thereto to come by rail to San Francisco instead of by steamer, as they have no detention whatever if they come overland. The object of this letter is to ask you to kindly review the regulations which you have promulgated in relation to vessels engaged in the Pacific coast coasting trade.

We also desire to call your attention to the fact that we are subject to no delays whatever in landing at Victoria. We usually arrive there at night between 8 p. m. and 3 o'clock a. m., and the health officer is on hand and ready to grant us, without delay, permission to land our passengers.

The same applies to vessels coming from Alaska and touching at Victoria, Vancouver, and other British Columbia ports.

Why should our Government not deal as liberally with her citizens as Canada does?

Hoping that you will see your way clear, in the interest of the public service, to issue such orders as will avoid this delay to our ships in this port, even if they arrive here after 6 o'clock in the evening, we remain

Yours, very truly,

GOODALL, PERKINS & CO.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

November 16, 1899.

Messrs. Goodall, Perkins & Co.,
San Francisco, Cal.

Sir: Referring to your letter of the 8th instant, with regard to the inspection of your vessels plying between Victoria, British Columbia, and San Francisco after the hour of 6 p. m., I have to inform you that the matter has been taken under advisement, and that every endeavor will be made to arrange matters in such a way as to comply with all necessary sanitary precautions and at the same time give the least possible cause for complaint to commerce.

Respectfully.

Walter Wyman,
Surgeon-General, M. H. S.

January 9, 1900.

Medical Officer in Command,
San Francisco Quarantine, Angel Island, Cal.

Sir: Referring to recent correspondence between Messrs. Goodall, Perkins & Co. and yourself with regard to the inspection of vessels from Canadian ports arriving at San Francisco after night, I have to inform you that where such vessels are provided with electric lights to facilitate the inspection you are authorized to do this inspection up to 10 o'clock at night in summer and 9 o'clock during winter months.

Respectfully,

Walter Wyman,
Surgeon-General, M. H. S.

COLUMBIA RIVER QUARANTINE; POST-OFFICE ADDRESS, VIA ASTORIA, OREG.

[Report of the medical officer in command, Asst. Surg. Hill Hastings. Assumed command under official orders of April 28, 1899.]

Columbia River Quarantine Station,
Astoria, Oreg., August 16, 1900.

Sir: I have the honor to report the transactions at this station during the fiscal year ended June 30, 1900, as follows:

QUARANTINE WORK.

Number of vessels inspected and passed	10
Number of vessels held for disinfection	28
Total	132
Treatment of vessels held for disinfection:	
Hold disinfected	19
Forecastle and crews' effects disinfected	5
Cabin and staterooms disinfected	2
Baggage disinfected (number of pieces)	1,526
Causes for detention of vessels in quarantine:	
(1) Plague epidemic at port of departure	16
(2) Yellow fever en voyage	1
(3) Beriberi en voyage	3
(4) Oriental immigrants aboard whose baggage required disinfection	8

Of the vessels whose holds were disinfected, 16 came from Honolulu, where plague was epidemic, necessitating fumigation to destroy rats. As there was no sulphur furnace provided, sulphur was burned in pots or on the ballast, and the hatches battened down for forty-eight hours. This effectually destroyed the rats, which were usually found dead in the open, where they had dropped after being smoked out of crevices and holes. Panama was responsible for the infection with yellow fever of four ships while in that port, causing 49 cases and 15 deaths. The infection, apparently, must have occurred while the vessels were discharging coal at one of the four little island coaling stations, about 3 miles from the city, and was the subject of a previous report.

Beriberi occurred on three vessels from the Orient—one from Manila, 8 cases and 1 death; one from Shanghai, 2 cases; and one from Kobe, 3 cases and 1 death. It is worthy of note, in view of the question as to the cause of beriberi, that the first case of beriberi broke out on the Kobe vessel 8 weeks before entering that port and 153 days out from Philadelphia, and that the first case occurred on the Shanghai vessel 30 days before entering that port and 130 days out from New York. Nothing could be learned to explain the long incubation period of the disease. Neither vessel had touched at an intermediate port nor had changed food or water. In each case the captain was one of those afflicted. From the long voyage the men had become somewhat debilitated, but had not given any signs of scurvy or digestive troubles.

Number of persons inspected and passed quarantine:	
Crew	3,899
European passengers	1,175
Oriental immigrants	1,046
Total	6,120
Number of persons detained in quarantine	2

On account of plague at San Francisco two Chinese from that port were held twelve days to complete incubation period.

Character of vessels inspected:	
Sailing vessels	97
Steam vessels	35
Total	132
Nationality:	
American	22
German	18
Norwegian	1
British	85
Japanese	1
Russian	1
French	3
Peruvian	1

The degree of cleanliness and of good sanitary condition is represented in the order of the above classification. Of the most common vessels, American, German, and British, the latter presented the dirtiest and most ill-kept forecastles. The German sailors were apparently the best fed.

By order of the Bureau, July 1, 1899, medical inspection of alien immigrants was made at this station instead of at Portland, Oreg.

There were inspected and passed (chiefly Japanese)	552
Rejected	None.
Cost of maintenance of station:	
Compensation of officers and employees	$4,824.70
Expenses of quarantine boarding steamer, including rent of same	2,225.34
Disinfectants	389.17
Incidentals	417.82
Total	7,857.03

CONSTRUCTION OF THE STATION.

The disinfection work during this fiscal year was done aboard ship with the use of emergency apparatus kept on the quarantine steamer *Electric*. This is a small tugboat that had been housed in for the accommodation of freight and passengers. The boat was leased for the year at $150 per month, and, with a few changes, proved to be a very serviceable quarantine boat. The crew, consisting of captain, engineer, and deck hand, was regularly appointed in the service and assisted in the disinfecting work. At Astoria dock privileges were rented at $5 per month, and office room, heat, and lights for $10 per month.

In August the Department of Justice, through the office of United States Attorney Wilson R. Gay, Seattle, Wash., took up the matter of purchase of the Knapton Cannery property directly across the river from Astoria, which had been selected in October, 1898, as available for a quarantine station site. The price agreed on and approved by the Department at that time was $8,000.

The transfer of this property was effected on February 8, 1900, by the payment of this sum to the owners, the Eureka and Epicure Packing Company. Preliminary plans and specifications for the construction of the station were at once forwarded to the Supervising Architect's Office through the Bureau. About the same time the Bureau ordered from the Kensington Engine Works, Philadelphia, Pa., a complete disinfecting plant, consisting of two steam chambers, Kinyoun-Francis pattern, 9 feet 6 inches long by 5 feet in diameter, two boilers, a bichlorid pump, sulphur furnace and fan, sulphur piping and fixtures. A formalin autoclave had previously been sent by the Bureau to the station.

In my last annual report the Knapton Cannery property was described, and also the improvements necessary to make of it a suitable quarantine station.

Disinfecting wharf.—Bids were advertised for on April 28 for the construction of a wharf 250 by 60 feet, and disinfecting and bath houses 100 by 30 feet each, to be built on this wharf. The location of this new wharf is shown on Chart A; the detail of wharf and buildings is shown by drawing No. 1. The contract was let to J. W. Suprenant, Astoria, Oreg., for $9,800. On June 26 work was commenced and is to be completed, according to contract, in sixty days. The disinfecting machinery was received May 20, and is stored in Astoria awaiting completion of the present work.

The new wharf has a frontage of 250 feet, with two dolphins at each end 50 feet apart. The depth of water along its front is 25 feet at lowest low water. The channel is about 1,500 feet wide in front of the wharf, and of good depth, while a few ship lengths below the station the channel widens and deepens considerably, affording a safe anchorage for vessels during such stormy weather that would render unsafe an attempt to bring a vessel to the wharf, or when there are several vessels in quarantine at the same time.

By September 1 this part of the construction of the station will be completed. Ample facilities for the rapid disinfection of a vessel and baggage and bathing of passengers and crew will be afforded. The bath house (100 by 30 feet) contains 15 shower baths. There are 10 shower baths in one room, with undressing room on one side and a large waiting room on the other side, while 5 baths are arranged separately, with private undressing and dressing closets for each bath. The hot-water supply will be ample for continuous use of the baths, bathing 60 persons per hour. It is believed that the usual amount of baggage of this number of immigrants can be disinfected at the same time, and the whole process completed while the ship's compartments are being disinfected.

Improvements ashore.—For the detention of passengers and crew in quarantine plans were drawn up, as shown in drawing No. 2, for the construction of barracks for steerage passengers (capacity, 358); barracks for crew, to accommodate 78; small hospital of 6 beds, and lazaretto of 6 beds. The barracks for immigrants, as planned, consists of a frame building, 120 by 30 feet, divided by a partition into two parts, each side having its own independent water-closet with 5 seats (2 female and 3 male) and 1 urinal. A gallery extends the length of the building on each side. The bunks consist of 3 tiers on the main floor, 3 bunks in height, and 2 tiers in the gallery, 2 bunks in height. The framework for the bunks is similar to that aboard ships that are equipped for carrying immigrants, so that when not in use as many bunks as desired can be knocked down and stowed away to give more space.

There will not be sufficient funds left from the original appropriation of $30,000 to complete all of these buildings, as shown by the following résumé of expenditures, viz:

Cost of property	$8, 000
Disinfecting machinery	5, 000
Contract price for new wharf and buildings	9, 800
Salary of foreman of construction	600
Additional price of increasing the depth to which wharf piles are driven	625
	24, 025
Available balance	5, 975
Total	30, 000

I believe that it is better to make necessary repairs and improvements to the property providing for the operation of the station this fall and winter rather than to use the remaining portion of the appropriation in the construction of these new buildings.

The repairs and improvements desired are—

(1) Repair to old wharf, Chart A, sufficient to make safe approach to new wharf	$600. 00
(2) Repair to small cottage, including plumbing	320. 00

(3) Repair to house No. 2, sufficient to provide permanent quarters for employees	$965.00
(4) Repair to house No. 3, including plumbing, to provide permanent quarters for ship's officers and cabin passengers	1,596.00
(5) Sewer piping for above-named buildings	259.00
(6) Water reservoir (3,000-gallon tank) and piping to new wharf and to buildings ashore	449.20
Total	4,189.20

These repairs will be permanent improvements to the property.

By making the repairs before the bad weather sets in in October the station will be well equipped for handling vessels, be provided with good quarters for employees, good water supply and sewer system, and comfortable house for quarters for cabin passengers, ship's officers, and temporary quarters for the quarantine officer.

In an emergency the old cannery buildings, which are not worth repairing, can be used for detention of immigrants in quarantine until the barracks can be built. There will be sufficient funds left over, after these repairs, for the construction of the small hospital shown in drawing No. 2, which I would recommend be built at present.

It will require another appropriation of $35,500 to complete the station and provide the following necessities:

(1) Boarding steamer	$15,000
(2) Barracks for immigrants, barracks for crew, and hospital, as shown in drawing No. 2	10,000
(3) Quarantine officer's cottage	3,000
(4) New approach to disinfecting wharf, including tearing down of the old wharf and structures	3,500
(5) Bulkhead along shore to prevent lodgment of drift, which is excessive and dangerous to the approach	1,000
(6) Pumping station, 20,000-gallon tank and supporting structure, and distributing pipes for provision against fire	3,000
Total	35,500

I respectfully recommend that these improvements be authorized during this fiscal year. They are urgently necessary in order to complete the station. Ample provision will then have been made for the handling of the shipping of the Columbia River with safety to this section of the country, and with least delay to vessels in quarantine.

Respectfully,

HILL HASTINGS,
Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

PORT TOWNSEND QUARANTINE; POST-OFFICE ADDRESS, VIA PORT TOWNSEND, WASH.

[Report of the medical officer in command, Asst. Surg. M. H. FOSTER (assumed command under official orders of July 22, 1899).]

JUNE 13, 1900.

MEDICAL OFFICER IN COMMAND,
Port Townsend Quarantine, Port Townsend, Wash.

SIR: Referring to your letter of the 7th instant, requesting that all quarantine matters of Puget Sound be placed under the jurisdiction of your office, I have to inform you that this is at present practically the status of this matter, although specific instructions have not been issued to this effect.

With regard to the further placing of Grays Harbor under the jurisdiction of your office, the matter will be taken under advisement. Letters will be addressed to the various stations making this matter clear, and when this is done copies of these letters will be sent to you for your information as to the exact orders which have been issued.

Respectfully,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

PORT TOWNSEND QUARANTINE, *July 8, 1900.*

SIR: I have the honor to invite your attention to the great increase of work done at this station during the last fiscal year over all preceding years. The report of transactions, which I will forward in a few days, will show the following comparisons with last year:

	1899.	1900.
Vessels inspected	305	498
Crews carried	9,452	16,233
Vessels disinfected	2	78
Passengers:		
First class	4,323	6,315
Steerage	1,491	8,145
Vaccinations	....	707
Immigrants inspected	....	7,225

There is a great increase in shipping now on the North Pacific coast, and from all appearances it will continue to grow steadily, as it is the legitimate outcome of a growth in all directions. There is a movement on foot by the Immigration Department to establish a sort of a subbureau here and compel all Orientals coming to the Sound to enter at Port Townsend. If this is done, it will cause still more work for this office in examining all these immigrants. The appointment of sanitary inspectors at Port Angeles and Anacortes, who are under our orders, and the performance of certain quarantine functions by representatives of the Service at Seattle and Tacoma under our supervision has materially increased the executive part of the work. The boarding of vessels, with the office work, is too heavy for one man. At the present time our hours for duty are from 4 a. m. to 8 p. m., Sundays included, and as I must be within reach during this time, it is very trying on one officer. The inspection of several hundred immigrants, stripped, for plague causes considerable delay, and two men are necessary to inspect the oriental liners in a reasonable time. I would therefore respectfully recommend that as soon as practicable three men be kept at this port; one to remain at the station, and the officer in command, with his assistant, to live here to board vessels, together when necessary, and to relieve each other from the long hours now prevalent.

The enforcement of quarantine has been much facilitated by the willing and intelligent cooperation of Collector of Customs F. D. Heutis and his special deputy, Henry Blackwood. Passed Assistant Surgeon Gardner has given us much valuable aid and advice and the unrestricted use of his laboratory for inoculations and bacteriological investigations. Our relations with the local health officer, who boards at the same time we do, have been most friendly, and not the slightest friction has occurred.

The appropriation of $26,000, now available for improvements to station, properly expended will give us much better facilities for supplying any reasonable demand made upon us, and with the steam tug and separate hospital for infectious diseases, for which an appropriation is asked in my letter of July 7, I think we will be equipped to meet any emergency which now seems likely to arise at this station.

Respectfully,

M. H. FOSTER,
Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

MARINE-HOSPITAL SERVICE SANITARIUM,
OFFICE OF MEDICAL OFFICER IN COMMAND,
Fort Stanton, N. Mex., March 8, 1900.

SIR: I have hesitated for some time in writing about a matter which does not concern me individually, more than the interest I have as an officer of the Service.

The Port Townsend and the State of Washington quarantine has caused me anxiety since plague was announced in the Orient, and I must invite your attention to the fact that the danger out there is not so much at Port Townsend as at the State line. My experience there was that the "tighter" the restrictions at Port Townsend the more travel was deflected via Victoria and Vancouver. Furthermore, the strictness of the Townsend quarantine was used by the Canadian Pacific Railway steamers as an inducement to secure passengers, hundreds of Americans returning to the States from Asia via Victoria and Vancouver entering the States at Blaine, Sumas, Mission Junction, Northport, and Portal, on the line of the Canadian Pacific leading into St. Paul. * * *

Respectfully, yours,

J. O. COBB,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

MARCH 17, 1900.

Surg. A. H. GLENNAN, M. H. S.,
Care United States Marine Hospital, Port Townsend, Wash.

SIR: Upon your arrival at Port Townsend it is desired that you shall make not only an inspection of the quarantine station at that point, but also investigate the possibilities of the admission into the United States of infectious material or suspects from British Columbia.

The possible danger involved in the travel from British Columbia into the United States is well set forth in the inclosed copy of a letter from Passed Assistant Surgeon Cobb, and the Bureau has caused to be mailed to you under separate cover the documents referred to in Dr. Cobb's letter, with the exception of the first reference (that from the annual report of 1895), a copy of which is inclosed herewith.

Respectfully,

WALTER WYMAN,
Surgeon-General, M. H. S.

PORT TOWNSEND QUARANTINE, *March 28, 1900.*

SIR: I have the honor to state that the following matter has been brought to my attention: The British ship *Queen Elizabeth* is expected to arrive at New Whatcom in about twenty days from Shanghai and she will load there. Her agents have requested, as she comes from a port in which there is no quarantinable disease, that some arrangement be made whereby she can undergo a quarantine examination there in order to save towing here and back again. I have stated to them that I would refer the matter to you, with the recommendation that she be permitted to go there and be inspected by the local health officer, who should wire the condition of the health of the crew and facts noted on her bill of health to this office, and in case everything was found to be satisfactory, I would wire the deputy collector to admit her on his pratique. The favor of an early answer is requested, as she may arrive sooner than we expect.

M. H. FOSTER,
Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Telegram.]

APRIL 3, 1900.

FOSTER,
Port Townsend, Wash.:

Would it not be possible for you to send your assistant to Whatcom to inspect *Queen Elizabeth?*

WYMAN.

JUNE 14, 1900.

ACTING ASSISTANT SURGEON IN CHARGE, U. S. M. H. S.,
Seattle, Wash.

SIR: In order to prevent confusion and bring about thorough uniformity of action in the matter of quarantine and immigration, you are directed to report on all such matters which may come under your care to the medical officer in command of the Port Townsend Quarantine Station, whose office will be considered hereafter as the central office for quarantine matters on Puget Sound.

Respectfully,

W. WYMAN,
Surgeon-General M. H. S.

NOTE.—A similar letter was sent to Tacoma.

PORT TOWNSEND QUARANTINE, *July 11, 1900.*

SIR: I have the honor to make the following report of the transactions of this station during the fiscal year ended June 30, 1900:

The total number of vessels inspected was 498, of which 193 were steam and 305 were sailing.

The crews of these vessels numbered 16,233, the cabin passengers 6,315, and the steerage 8,145.

Seventy-eight vessels were sent to the station and disinfected; besides this, the baggage of 37 persons was disinfected for some special reason. These 37 persons were scattered over 7 vessels.

Immigrants to the number of 7,225 were inspected, and 707 of these, coming on local steamers from Victoria, were vaccinated.

Most of the vessels disinfected came from Honolulu while a plague-infected port, a few from Hongkong and Manila. The larger part of the oriental steamers from infected ports touch first at Victoria, British Columbia, and are treated at their quarantine. One plague-infected vessel arrived at the station, and there were 3 deaths there, but no further developments. Vessels having had yellow fever and smallpox aboard also arrived during the year.

In connection with the work here the following was done at subports under the direction of this office:

At Seattle 10 vessels were inspected by Acting Assistant Surgeon Eagleson, and 1 was sent to the station for disinfection.

At Port Angeles 3 vessels were inspected by Acting Asst. Surg. C. F. Kuhn, and 1 was sent to the station for disinfection.

At Tacoma 1,866 packages of Chinese merchandise were disinfected by Acting Asst. Surg. J. F. Schug.

Respectfully,

M. H. FOSTER,
Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

PORT TOWNSEND QUARANTINE, *July 11, 1900.*

SIR: I have the honor to transmit herewith reports drawn up by my direction of the transactions pertaining to quarantine at the ports of Tacoma, Seattle, and Port Angeles.

Respectfully,

M. H. FOSTER,
Assistant Surgeon, M. H. S.

TACOMA, WASH., *July 9, 1900.*

SIR: I have the honor to report to you the transactions for the fiscal year ending June 30, 1900, showing the total amount of packages of Chinese food stuffs and other goods disinfected at this station, viz:

Date.	Number of packages.	Place and vessel.
April 28	105	Hongkong, per steamship Olympia.
June 5	284	Hongkong, per steamship Breconshire.
Do	1,311	Hongkong, per steamship Glenogle.
June 14	166	Hongkong, per steamship Queen Adeline.
Total	1,866	

Respectfully submitted.

F. J. SCHUG,
Acting Assistant Surgeon, M. H. S.

SEATTLE, WASH., *July 9, 1900.*

SIR: I have the honor to report the following quarantine work performed at this station during the year ending June 30, 1900:

Number of vessels inspected	10
Total number of crews	597
First and second class passengers	3,584
Steerage passengers	0

Number of vessels sent to quarantine station for disinfection	1
Number of immigrants inspected	0
Number of immigrants vaccinated	0

Very repectfully,

J. B. Eagleson,
Acting Assistant Surgeon, M. H. S.

Report of transactions at Port Angeles Boarding Station for the fiscal year ended June 30, 1900.

Number of vessels inspected	3
Number of steam vessels inspected	1
Number of sailing vessels inspected	2
Number of crew inspected	74
Number of cabin passengers inspected	6
Number of steerage passengers inspected	0
Number of immigrants inspected	0
Number of immigrants vaccinated	0
Number of vessels sent to quarantine for disinfection	1

C. F. Kuhn,
Acting Assistant Surgeon, M. H. S.

Surgeon-General Marine-Hospital Service.

HYGIENIC LABORATORY.

REPORT OF THE HYGIENIC LABORATORY.

By M. J. Rosenau,

Passed assistant surgeon, and Director of the Hygienic Laboratory United States Marine-Hospital Service.

Personnel.

From July 20 to October 25 the laboratory was in the charge of P. A. Surg. E. K. Sprague.

Dr. Geddings has worked on special detail in the laboratory since November 9, and I desire here to acknowledge the many benefits which we have derived from his ability and varied experience. Dr. Geddings's work will be made the subject of a special report.

Asst. Surg. L. D. Fricks was detailed to the laboratory December 29, and was given a course of instruction with special reference to the diagnosis of plague. On May 1 he was sent to the Philippines with a complete bacteriological laboratory.

Asst. Surg. Donald H. Currie was detailed to the laboratory November 24, and was given a complete course of instruction in bacteriology and practical disinfection.

Both Dr. Fricks and Dr. Currie materially helped the work of the laboratory, especially in the disinfection and viability tests, the animal inoculations, etc.

Mr. M. C. Marsh, representing the Fish Commission, was given the opportunity of study in the laboratory during the winter. He made interesting observations on the bacteria found in the blood and peritoneal cavity of the normal trout. Other duties, however, prevented a continuance of this work, but it is hoped that it may be resumed next winter.

My own work was interrupted during the summer by reason of presidential orders to inspect the quarantines of the island of Cuba, and subsequently by being detailed as the quarantine officer of the port of Habana from July 20 to October 25.

Assistants in the Laboratory—Class Work.

It is plainly one of the duties of the hygienic laboratory to instruct the younger officers in the subjects of bacteriology, the pathology of the infectious diseases, the science and practice of disinfection, and kindred subjects.

In my opinion it is better to give a few officers a thorough knowledge of these subjects than a smattering to a large class. I have therefore to recommend that four or five assistants be detailed to the laboratory for not less than one year. In that time a very fair working knowledge of these subjects may be obtained. To give a class of many members a course extending over three months is not a very satisfactory process. A class of this size takes up all our available working space and crowds the laboratory very much, so that original and other work is impeded—in fact, is crowded out. In three months the elements of the subject may be covered, but only in a hasty manner.

The alternative suggestion of detailing fewer officers for longer times is better, both for the officer and the laboratory. The officer obtains a more thorough knowledge of the subject and the laboratory the benefit of valuable assistance.

The work is laid out systematically for the officers detailed to the laboratory somewhat as follows, the individual equation being taken into account:

They begin with the alphabet of the subject, viz, making media, staining, use of instruments, principles of disinfection and sterilization, bacteriological technique, study of the saprophytes, etc. After this ground work they are given the pathogenes singly and in groups for study, and then take up the bacteriology of the air, water, soil, the subject of toxins, antitoxins, etc. Each subject is worked until it is mastered. There is no time limit, and therefore no hurry, the object being to lay a thorough foundation.

After an officer has followed this line for three or four months he is intrusted with the work of the laboratory, and after the general course outlined above is finished he is encouraged to take up original work and given every facility to this end.

After a year's conscientious work as outlined above a man should be well qualified to carry on bacteriological and pathological research for himself, and could be entrusted with the diagnosis of doubtful cases of cholera, plague, diphtheria, dysentery, malarial fever, etc.

After a term of duty here I have to respectfully recommend that officers should be given opportunity to continue their studies at other laboratories or large hospitals and be commissioned to carry out original investigations in the special subjects mentioned in another place.

If this view is adopted, it is important that the individual wishes of the officer be consulted, and I have also to recommend that officers of the Service who have a special interest in this kind of work and desire to make a life study of bacteriology and pathology shall communicate their desire to the Bureau in order that the time and energy spent in carrying out this design should devolve upon those who have the work at heart. It is not expected that every officer in the Service shall become a trained bacteriologist, and in this age of specialism it is well to consult the individual wishes of the officer in directing his energies.

Special Subjects for Scientific Research.

DENGUE.

I have to recommend that a systematic and scientific study be made of dengue. This disease becomes epidemic in the South from time to time, and seems to have some epidemiological relation to outbreaks of yellow fever. At least these two diseases have been confused. It is important that we know the exact cause of dengue and have ready methods of diagnosis.

YELLOW FEVER.

On account of the great importance to our country, more work should be done with yellow fever—especially, studies into the cause of the disease and ready methods for recognizing cases. The isolation and identification of the *Bacillus icteroides* is one of the more difficult and tedious processes of bacteriology. It is difficult to separate the organism from other bacteria which frequently accompany it. Its relation to the colon group, as well as its similarity to other pathogenic bacteria, makes its identification a long process, and therefore has entered an element of confusion as to its identity as well as its relation to the disease. The serum diagnosis by clumping has also been disappointing for this disease. Further studies into the cause of yellow fever as well as the treatment and prophylaxis of the disease and the means of its spread are important.

SMALLPOX.

The present outbreak of smallpox all over the country affords unparalleled opportunity to study this disease from a bacteriological standpoint, and I have to urgently recommend that a commission of one or more competent scientists be detailed to work on this line—the cause and diagnosis of smallpox.

MALARIA.

Severe forms of malarial fever, with hemoglobinuria, occur in Arkansas, Alabama, parts of South Carolina, and the Mississippi bottoms from Memphis down.

This disease needs study in relation to blackwater fever of the Cameroons and the pernicious type of malaria as it occurs in other parts of the world.

The particular mosquitoes which spread malaria in our own country need watching and reporting upon in all parts, in order that intelligent means may be taken to eradicate them.

DYSENTERY.

In view of Shiga's discovery of the cause of epidemic dysentery in Japan and the finding of the same organism by Flexner in the Philippines and from Porto Rico, there can be little doubt now that some of the forms of tropical dysentery are caused by this bacillus. Shiga already has a serum obtained from horses for this malady and claims diagnostic value for the clumping reaction of the blood serum of those sick with the disease and his *Bacillus dysenteriæ*. This is a valuable aid to the differential diagnosis between this form of dysentery, amoebic dysentery, and dysentery of other origin. Work is needed to demonstrate just how much of this form of dysentery exists in Cuba and Porto Rico and the southern portion of our own country, as well as to corroborate the value of the clumping reaction in diagnosis and the serum in treatment.

COMMISSION ON PUBLIC WATER SUPPLIES AND WATER POLLUTION.

I have to respectfully recommend that a commission consisting of one officer be detailed at the hygienic laboratory for the sole purpose of studying and reporting upon the subject of water pollutions, water purification, and all the details of supplying large communities with pure water.

This subject is such an important one from a public health standpoint and such a large and growing one that one man's time could profitably be spent in conducting original research along this line and in collecting data that is now fast accumulating on this and allied subjects.

DISINFECTION EXPERIMENTS.

It will be seen from the appended reports that a large amount of the winter's work of the laboratory consisted of disinfection experiments.

This is an all-important subject from a Service standpoint, and it is one of the duties of the laboratory to add to our knowledge of scientific disinfection.

From the work done it will be seen that formaldehyd remains a valuable disinfectant when in the hands of those who understand its use. It is an unstable, complex, organic substance, with a great affinity for water. It is difficult to obtain definite amounts of the gas in its free state.

It has been plainly demonstrated that sprinkling formalin over baggage is not an efficient method of disinfection unless done with great care. The solution must be sprinkled in minute drops and between many layers. Splashing the fluid on with brushes, etc., will not suffice.

Liquid formalin (the 40 per cent solution of formaldehyd) is a powerful disinfectant wherever it touches, but it readily changes to polymeric states and gives off variable amounts of the gas, formaldehyd, under different conditions.

The work in detail is appended to this report.

Further work on the efficacy of disinfecting rooms with formalin by the sheet method, etc., is being carried out.

Dr. Geddings has undertaken a series of work to test the value of chemically dry sulphur dioxid, and I have a series of experiments now under way to determine whether moisture is necessary for the action of formaldehyd gas.

PATHOLOGICAL SPECIMENS.

It is not possible with our present force in the laboratory to work up the specimens from all the cases that come to autopsy in the Service. A circular letter was therefore prepared with your approval and is now in press and will soon be sent to the officers of the Service, requesting specimens from selected cases, with instructions for collecting, fixing, etc.

A system for pathological work has been devised which will meet our needs.

The specimens are numbered and registered upon receipt. The specimen then goes by its number and all the data are recorded in an appropriate place. A special cabinet has been arranged for passing the specimens through the fixing, dehydrating, and clearing solutions, etc., up to the paraffin in which they are embedded. These paraffin blocks are numbered and preserved. It is also the intention to ask authority to purchase a cabinet for the stained sections, which should also be filed and indexed for easy access.

According to this system the pathological specimens are always ready for study, and special study may be pursued from the slides already mounted and stained or from the paraffin blocks.

The following is the circular letter:

DIRECTIONS TO BE OBSERVED IN COLLECTING AND PREPARING SPECIMENS FOR THE HYGIENIC LABORATORY.

Treasury Department, M. H. S.,
Washington, D. C., June 16, 1900.

To Medical Officers United States Marine-Hospital Service.

Sir: The hygienic laboratory can not undertake, at present, to work up the pathology of all cases which come to necropsy in the Service. It is therefore desired to select cases which present special features, unusual interest, or in which there is doubt as to the diagnosis, which may be cleared up by pathological or bacteriological study. You are therefore requested to mail such specimens to the director of the hygienic laboratory, United States Marine-Hospital Service, Washington, D. C.

Observe all the requirements of the postal laws and regulations relating to the transmission of diseased specimens through the mails. A copy of the latest order of the Postmaster-General, No. 176, dated March 2, 1900, on this subject, is inclosed.

The mailing cases sent you fully comply with the law and may be used for this purpose. Extra cases may be had on application to the director of the hygienic laboratory, if you need them.

You are requested to observe the following directions in collecting and preparing specimens:

1. The specimens must be obtained as soon as practicable after death. Post-mortem changes rapidly alter the finer structure of the cells.

2. The specimens should be placed in the "fixing" solution without delay. The object of this is to "fix" the histological elements. This accomplishes the rapid killing of the cell elements before they have time to change the form they had during life and hardening to such an extent as to enable them to resist, without further change of form, the action of the agents with which they must subsequently be treated.

3. In order to obtain this result the pieces of tissue must be small, not more than one-half a cubic centimeter—say about one-fourth of an inch cube. Small squares should be excised from the diseased portions of the organs.

Take specimens from all the organs. Specimens should, at least, be taken from both the cortex and medullary portions of the glands. In the case of tumors, small cubes should be taken from the periphery, the center, and other portions.

4. In addition to the small specimens it is often found desirable to send an entire gland, tumor, or pathological process to the hygienic laboratory. This should always be done in a watery solution containing 4 per cent formaldehyd.

5. Cut the small pieces with a sharp knife or scissors. Avoid crushing the tissue, and do not squeeze out the blood. Drop them at once into the sublimate fixing solution and label each one plainly. The sublimate fixing solution sent you consists of a saturated solution of bichloride of mercury, c. p., in boiling water, with 5 per cent acetic acid. Use about twenty times the bulk of this fixing solution to the bulk of tissue.

6. Small pieces of spongy tissue, like lung, will be quickly penetrated and should not stay in the sublimate fixing solution longer than six hours. Dense fibrous or cartilaginous tissue fix more slowly and should stay in the solution twenty-four hours.

7. Remove the sublimate fixing solution, wash in water, and replace with 70 per cent alcohol, in which it may be sent to the hygienic laboratory.

8. If the bottle containing the 70 per cent alcohol is full, the specimens will not suffer violence from shaking in traveling. The same object may be attained by placing absorbent cotton in the bottle.

9. Fix nervous tissue in a watery solution containing 4 per cent formaldehyd. This is especially applicable to large pieces of cord and brain.

10. In case you have none of the bichloride fixing solution, the specimens may be fixed in Fleming's solution, absolute alcohol, or 4 per cent formaldehyd solution. The method of fixing should always be stated in the notes accompanying the specimen.

11. In addition to the specimens for pathological study, prepared as above indicated, it is often desirable to collect specimens for bacteriological study, especially in cases of infectious processes. For this purpose Sternberg's collecting bulbs are also sent you. Specimens of blood, pus, and juices, sputum, secretions, etc., may be sealed in these bulbs and sent without delay to the laboratory for study. Such specimens must, of course, be collected with the usual care to prevent contamination.

12. A complete clinical and post-mortem history should accompany each case. The laboratory report will be added for the files of the Bureau and a copy of the same will be sent to the officer from whom the specimens are received.

M. J. Rosenau,
Passed Assistant Surgeon, M. H. S., Director Hygienic Laboratory.

Approved.
Walter Wyman, *Surgeon-General M. H. S.*

TRANSMISSION OF DISEASED TISSUES THROUGH THE MAILS.

Following is the letter of the Surgeon-General to the Postmaster-General making certain recommendations concerning the transmission of diseased tissues through the mails. A copy of the Postmaster-General's order No. 176, made in compliance with the above-mentioned letter, is also added:

Treasury Department,
Office of Surgeon-General, U. S. M. H. S.,
Washington, July 18, 1899.

Sir: Referring to your conversation with Passed Assistant Surgeon Rosenau, of this Service, on the subject of pathological specimens in the mail, I have to state that your letter of November 8, 1897, was answered tentatively, awaiting further experiments on the subject in question.

Pathological specimens may safely be admitted to the mails when properly cased and packed in absorbent cotton, as specified in order 667 of the Postmaster-General, dated December 27, 1897.

I have to recommend that an additional restriction be added to this order to the effect that liquid cultures, or cultures of microorganisms in media that are fluid at the ordinary temperatures (below 45° C. or 113° F.) be excluded from the mails.

Such specimens may be sent on media that remains solid at ordinary temperatures, which greatly diminishes the risk from possible leakage or breakage.

Respectfully, yours,

Walter Wyman,
Supervising Surgeon-General M. H. S.

Hon. W. S. Shallenberger,
Second Assistant Postmaster-General, Washington, D. C.

The regulations of the Post-Office Department in relation to the transmission of disease specimens through the mails, as amended in accordance with the Surgeon-General's recommendations, are as follows:

ORDER OF THE POSTMASTER-GENERAL.

Order No. 176.]

Office of Postmaster-General,
Washington, D. C., March 2, 1900.

That the order of the Postmaster-General of December 27, 1897 (Order No. 677), amending Order No. 88 of February 5, 1896, prescribing the conditions under which specimens of diseased tissues may be admitted to the mails, is hereby further modified in the following manner:

Specimens of diseased tissues may be admitted to the mail for transmission to United States, State, or municipal laboratories, only when inclosed in mailing packages constructed in accordance with the specifications hereinafter enumerated: Liquid cultures, or cultures of micro-organisms in media that are fluid at the ordinary temperature (below 45° C. or 113° F.) are unmailable. Such specimens may be sent in media that remain solid at ordinary temperatures.

Upon the outside of every package shall be written or printed the words "Specimen for bacteriological examination. This package to be treated as letter mail." No package containing diseased tissue shall be delivered to any representative of any of said laboratories until a permit shall have first been issued by the Postmaster-General certifying that said institution has been found to be entitled, in accordance with the requirements of this regulation, to receive such specimens.

Specifications for the construction of packages for safely conveying through the mails pathological specimens for bacteriological examination for diagnosis in cases of suspected diphtheria, tuberculosis, and other communicable diseases:

(1) The receptacle for moist specimens of diseased tissues shall be a strong glass vial or test tube having a capacity not greater than 2 drams. Said vial shall be covered and made water-tight by the use of a metal screw cap and a rubber or felt washer which has been immersed in melted paraffin; or, if a test tube be used, it shall be covered with a tightly fitting rubber cap.

(2) Said vial or test tube shall be placed inverted in a circular tin box. Said box shall be made of I. C. Bright tin plate, and shall have flush or countersunk bottom soldered joints and not be smaller than 1⅛ inches in diameter and 3 inches long, nor larger than 2¼ inches in diameter and 3½ inches long. This box shall be closed by a metal screw cover and a rubber or felt washer, or tightly fitting metal sliding cover, and it shall be so packed with absorbent cotton that the glass or test tube contained in said tin box shall be evenly surrounded on all sides by said cotton, and the cotton shall be closely laid.

(3) Said tin box shall be placed inverted inside of a larger tin box similar to the one already described, which should snugly receive the specimen box. Upon the inside of the sides and bottom of this outer box there shall be a lining of compressed paper not less than three-sixteenths of an inch in thickness. Said outer tin box shall be closed by a metal screw cap and a rubber or felt washer; or this outside box may consist of hard wood, being a block having a cylindrical hole bored in one end and extending to within not less than 1 inch of the opposite end, the open end to be closed with a wooden or metal screw cap with a rubber or felt washer; or the outside box may be a cylindrical wooden box having a screw cap and washer, the thickness of the sustaining part of the wooden tube to be not less than one-quarter of an inch, and be lined same as the tin box.

(4) The receptacle for dry specimens of diseased tissues shall be a glass test tube 3 inches in length and one-half inch in diameter. Said test tube shall be inclosed in a circular tin box similar to those already described, but measuring 2¼ inches in diameter and 3½ inches in length, and be lined upon its sides and bottom with compressed paper not less than one-quarter of an inch in thickness. Said box shall be closed by a metal screw cap and a rubber or felt washer. Said test tube shall be closely packed in cotton.

PERRY S. HEATH,
Acting Postmaster-General.

PLAGUE.

A large amount of work with plague was carried on throughout the winter.

SUSPECTED CASE AT REEDY ISLAND.

A doubtful case was examined with negative results.

The man was a Barbados negro, the steward on the bark *Montreal*, which arrived at Reedy Island quarantine June 7, fifty-eight days from Buenos Ayres. The disease probably existed at Buenos Ayres at the time the bark sailed from there.

Clinically the man had elephantiasis of the left leg. He gave a clear history of successive acute attacks both in Savannah and the Barbados. He took sick with rigor and fever polyadenitis and swelling of his affected leg just before entering the Delaware.

The patient was in charge of Asst. Surg. T. F. Richardson, in command of the Reedy Island quarantine, who will report fully the clinical history, which corresponded to elephantoid fever. This diagnosis was confirmed by the finding of a filaria nocturna in the patient's blood. However, there is no reason why a man suffering with filaria might not also be infected with plague; therefore, a very careful bacteriological study was made of the blood, the glands of the groin, the juice obtained by deep puncture into the lymph angiectatic swelling, and the contents of some blisters that had formed on the leg. Large quantities of blood serum and blister fluid were injected into the ear vein of rabbits, also subcutaneously into guinea pigs and mice. All the growths obtained were studied on animals and media. In all, 22 animals were inoculated. Only two mice died—not of plague.

Specimens and cultures of plague were also received at the laboratory from San Francisco, Fresno, Rio de Janeiro, Oporto, and the New York quarantine case. All were studied.

SAN FRANCISCO PLAGUE CULTURES.

On account of the doubt expressed as to the correctness of the diagnosis of the organisms isolated and identified by Surg. J. J. Kinyoun in San Francisco as plague, these cultures were studied very carefully in this laboratory.

The cultures sent us by Dr. Kinyoun are undoubtedly genuine bubonic plague. They show all the characteristics in morphology, biology, and pathogenicity. The crucial test of inoculating mice and rats with the organism and treating half of them with Yersin serum resulted in the death of those inoculated, whereas those inoculated and treated with the serum not only survived, but did not sicken.

A full report will be submitted in the appendix.

HAFFKINE'S PROPHYLACTIC.

Dr. Geddings made very large quantities of the Haffkine's prophylactic during the winter. The method of its manufacture, etc., will be reported upon in a separate communication by him.

Between January and June over 50,000 doses were bottled and sent out. Twenty-eight thousand doses are bottled and on hand ready for distribution, and we have 100,000 doses in reserve ready for bottling. It may be readily inferred that this amount of work taxes the capacity of the laboratory, both as far as its space and its force is concerned.

The following is a list of Haffkine prophylactic issued by the laboratory:

Date.	Destination.	Quantity (doses).	Monthly total.
1900.			
Jan.	Honolulu	1,500	
27	do	1,870	3,370
Feb. 3	Surgeon-General Van Reypen, U. S. N	100	
6	Manila	2,000	
10	Honolulu	1,860	
20	Manila	2,175	6,135
Mar. 1	do	1,950	
10	San Francisco	3,130	
15	do	8,505	13,585
Apr. 6	Philippine Commission	200	
26	Butte, Mont	2,700	2,900
May 5	San Francisco quarantine	4,000	
8	Honolulu	940	
16	San Francisco quarantine	3,461	
17	do	3,000	
18	do	7,850	
19	do	4,990	
21	do	1,750	
26	El Paso, Tex	100	26,091
June 9	Delaware Breakwater quarantine	100	
9	Reedy Island quarantine	100	
11	Columbia River quarantine	100	
11	Tortugas quarantine	100	
	Gulf quarantine	100	
	Cape Charles quarantine	100	
	Cape Fear quarantine	100	
	Savannah quarantine	100	
	South Atlantic quarantine	100	
13	Port Townsend quarantine	100	

Date.	Destination.	Quantity (doses).	Monthly total.
1900.			
June 13	Brunswick (Ga.) quarantine	100	
	San Diego quarantine	100	
27	New York quarantine	200	
	Quarantine officer, Sabine, Tex	100	
	Quarantine officer, Galveston, Tex	100	
	Health officer, Jacksonville, Fla	100	
29	Health officer, Port Royal, S. C	100	
	Hoquaim, Wash	100	
	Bluefields, Nicaragua	20	
	Puerto Cortez, Honduras	20	
	Boscas del Toro, Colombia	20	
	La Ceiba, Honduras	20	
	Port Limon, Costa Rico	20	
	Livingston, Guatemala	20	
	Belize, British Honduras	20	
			2,090
	Total		54,121

YERSIN SERUM.

We have three horses undergoing immunization by the *Bacillus pestis* in order to obtain a curative serum from their blood. This work is under the charge of Dr. Geddings, who will report upon it separately.

VIABILITY OF BACILLUS PESTIS.

Numerous experiments were made with the *Bacillus pestis* to determine its life history outside of the body.

For this purpose we used cultures of the bacillus in artificial media, also the blood and spleen from animals dead from plague. The bacillus from these various sources was exposed under various conditions of temperature to drying, to sunlight, and on all sorts of objects, such as wood, glass, paper, plush, linen, upholstery, carpet, gelatin-albumen, etc.

The work in detail is given as an appendix to this report.

Similar experiments upon the viability of cholera, typhoid, *Bacillus icteroides*, etc., are also being carried on and will be reported upon later.

BACTERIOLOGICAL DIAGNOSIS OF PLAGUE.

The laboratory was requested from several sources for instruction as to sending specimens of plague for diagnosis. The following circular letter was therefore prepared, which met with your approval:

[Circular letter.]

TREASURY DEPARTMENT,
OFFICE OF SURGEON-GENERAL U. S. M. H. S.,
Washington, June 29, 1900.

To Medical Officers and Acting Assistant Surgeons, U. S. M. H. S.:

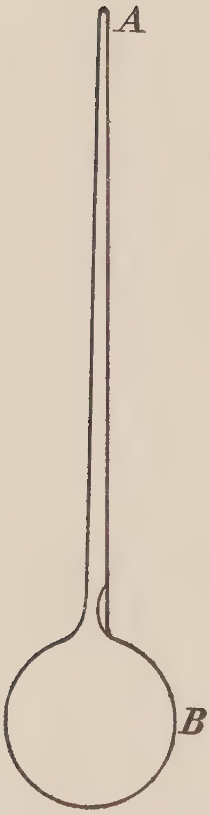
THE BACTERIOLOGICAL DIAGNOSIS OF PLAGUE—METHOD OF COLLECTING AND PREPARING MATERIAL FOR TRANSMISSION BY EXPRESS TO THE HYGIENIC LABORATORY OF THE UNITED STATES MARINE-HOSPITAL SERVICE.

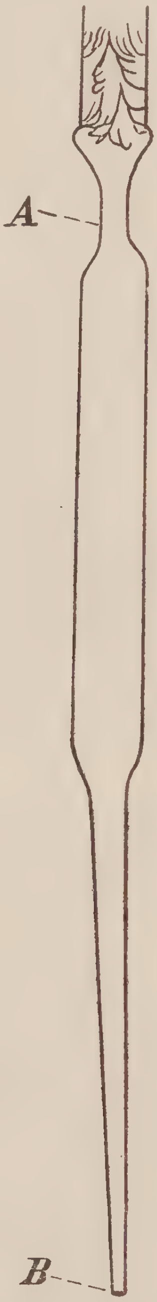
(1) The bacillus of plague can generally be found in either the blood, the enlarged glands, the spleen, the fluid contents of blisters and vesicles, and the sputum of cases of the pneumonic type. Therefore specimens from as many of the above sources as practicable should be collected.

(2) Cultures upon agar-agar or Loeffler's blood serum: It is suggested that those familiar with bacteriological technique may preferably send inoculations from the above-mentioned sources on agar-agar or Loeffler's blood serum in addition to the fluids and tissues themselves.

(3) The collection of fluids: For this purpose the bulbs and pipettes sent you are best suited. The blood may be collected from the finger or ear tip after proper sterilization of the skin. It may also be collected from a vein by means of a sterile hypodermic syringe, and transferred with bacteriological precautions to the bulb or pipette. Under the same precautions as to sterilizing the skin, the juice of enlarged glands or the contents of vesicles or blisters can be collected with either the bulb, the pipette, or the syringe.

(4) The collection of material from the spleen, the lungs, enlarged glands, or other organs at necropsy can be effected by means of the bulb or pipette.





(5) Directions for using the bulb or pipette: Sear the surface of the organ with a hot spatula or glass rod. The bulbs and pipettes as sent you are sterile; therefore they should be protected from contamination and the capillary portion should be handled with proper precautions. To use the bulb, break off the point (A) with sterilized forceps, warm the bulb B, and while still warm plunge the point into the organ through the seared surface. Work the point about so as to break up the tissue. As the air in the bulb cools, fluids and fragments of the tissue are drawn up. Then withdraw the point and seal the capillary end in the flame. The use of the pipette is precisely the same except that the fluids and fragments are drawn up by suction applied by the mouth. The pipette must be sealed in the flame at both

ends, A B. Sterilize the exterior with bichloride or carbolic solution, and label each tube and bulb with the nature of its contents and the date of collection.

(6) This method of collection is applicable to all fluids as pus, urine, sputum, serous effusions, œdemas, etc., specimens of which, as well as pieces of organs other than those mentioned, may be sent for the sake of completeness.

(7) In addition to fluids and juices of organs it is often desirable to send to the laboratory lymphatic glands or portions of spleen. This should be done in the following manner: Remove with aseptic precautions the entire gland with its capsule, or portions of the spleen not larger than a hen's egg. Envelop each specimen in a liberal wrapping of moist bichloride gauze, and put the whole in a sterile bottle, the cork or stopper of which should be secured with sealing wax or hard paraffin, and contents plainly labeled. Wash the outside of the bottles with antiseptic solution, as in the case of the bulbs and pipettes. It is best to put each specimen in a separate bottle.

(8) Wrap each bulb, test tube, pipette, and bottle separately in a very large bulk of absorbent cotton, and pack in a strong box between layers of more absorbent cotton and send to the laboratory by express. To prevent confusion of specimens, a memorandum of the principal facts should be inclosed in the box.

(9) A complete clinical history and necropsy record should be sent with the specimens or should follow by mail.

Walter Wyman,
Surgeon-General, M. H. S.

PNEUMONIA.

The work on the toxins and antitoxins of pneumonia was continued.

By the method of Lustig I was enabled to separate a toxin that is fatal for mice in very small doses.

In this method bouillon growths, or agar suspensions, are treated with sodium hydrate (one-half of 1 per cent), then precipitated with acetic acid, filtered, collected, and dried over sulphuric acid. Two one-thousandths gram of the toxin obtained by this procedure injected into a mouse caused death in twenty-four hours, with paralytic symptoms and jerky respirations.

Two horses were given increasing doses of pneumonia toxin with the hope of producing an antitoxin, but their death gave this work a setback.

One of the horses died March 13, the result of a large intravenous injection of pneumonia toxin. This horse had been undergoing the process of immunization for pneumonia since December 27 of the preceding year—that is, for about three months. He received large and increasing doses of pneumonia toxin. The injections were always given intravenously.

The toxins were made by growing a virulent culture of the organism in bouillon or by making a heavy suspension of agar growths in special toxin flasks.

The clinical chart showing the amounts of toxin and reaction follows:

It is with regret that I have to report the death of the other horse undergoing treatment, with pneumonia. This closed the winter's work of the laboratory on this subject.

This horse died May 7. His death was not the direct result of the inoculations of toxin, for the last inoculation had been given him nine days prior to his death and without apparent reaction.

He suffered with a febrile disease which was epizootic in our stables at the time.

His chart follows:

TYPHOID.

The work with the toxins and antitoxins of the *Bacillus typhosus*, commenced by my predecessor, is continued. We now have three horses undergoing immunization with this organism with the hope of obtaining a curative serum.

Bleedings have been taken from time to time, and the blood serum of the horses is found to have feeble antitoxic power, though showing agglutinative power.

The work is not reported in detail at present on account of the lack of definite results.

VACCINE VIRUS.

The cause of vaccinia is not known, but, thanks to bacteriological methods and the knowledge we now possess of the nature and character of septic organisms, it is comparatively easy to determine the presence or absence of these organisms in vaccine lymph.

The substitution of calf virus for "humanized" lymph was the first important step taken toward purifying the virus by eliminating the possibility of conveying infections like syphilis, etc.

The next most important advance in this direction was the method of mixing glycerin with the calf virus.

It had long been the practice at vaccine farms to add glycerin to dilute the virus, it having been found empyrically that this could be done without impairing its efficacy. This dilution has now been placed on a scientific basis. We now know that the glycerin has the faculty of destroying, first, the pathogenicity, and later the life of the septic organisms that usually contaminate calf virus. This process takes time. It is therefore important that the mixture of glycerin and lymph should be thoroughly mixed and allowed to stand until bacteriological test shows the absence of all harmful organisms.

Glycerin has feeble antiseptic power. It will not kill spores. Fortunately spore-bearing pathogenic micro-organisms are not factors in the contamination of lymph.

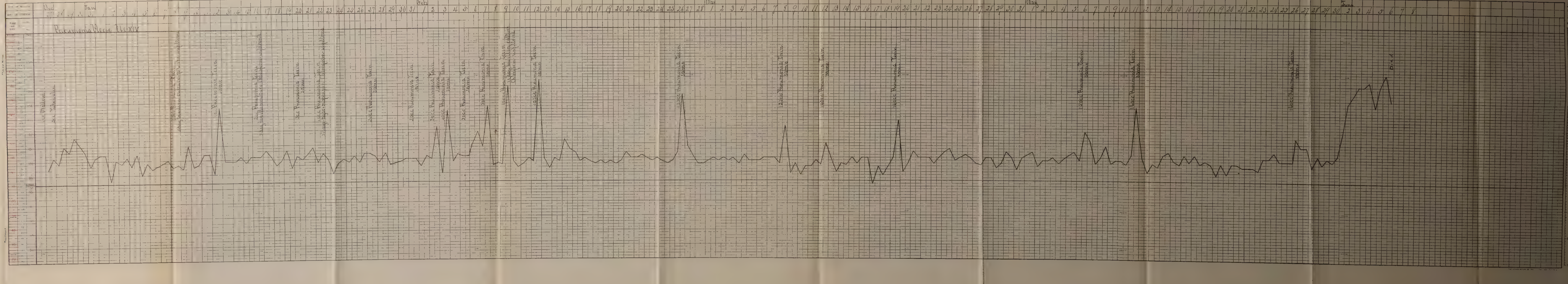
Glycerinated lymph finally loses its specific efficacy, so that care must be taken not to use old virus. It is therefore important to systematically test the lymph in order that the standard of purity may be maintained, as well as to insure the efficacy of the vaccination.

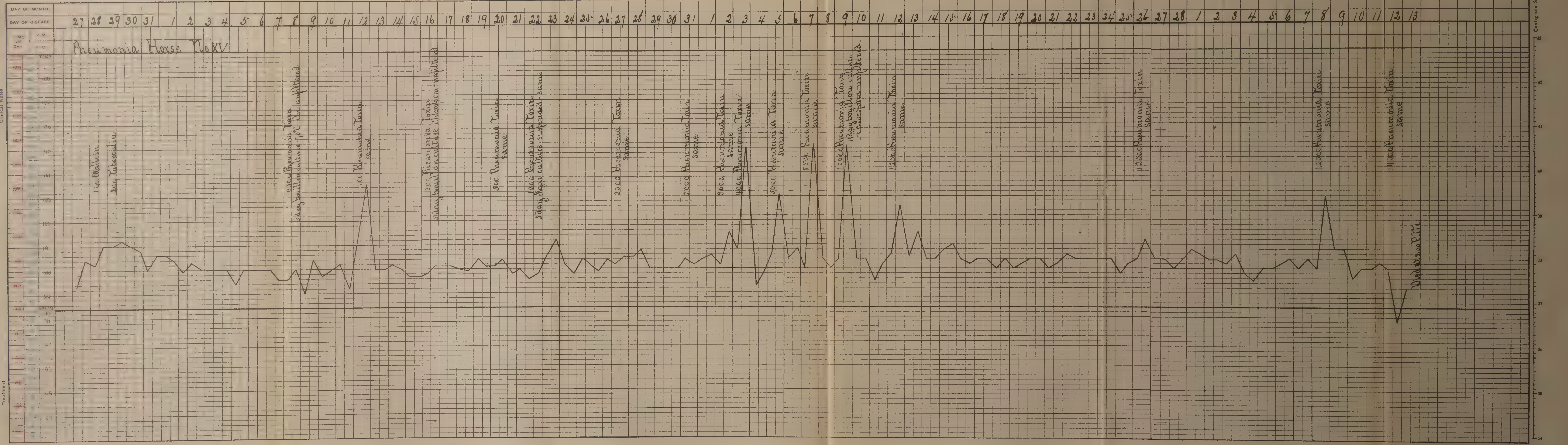
Satisfactory as the work toward the purification of vaccine virus has been, there is still room for improvement in its manufacture, for of the samples of glycerinated lymph examined in this laboratory none was found to be sterile. To be sure, an absolute standard of sterile virus is not expected, for there are many chances for accidental contamination, but there should be no pathogenic cocci. With proper care in collecting and the process of glycerinization and preservation, a high degree of purity may be obtained.

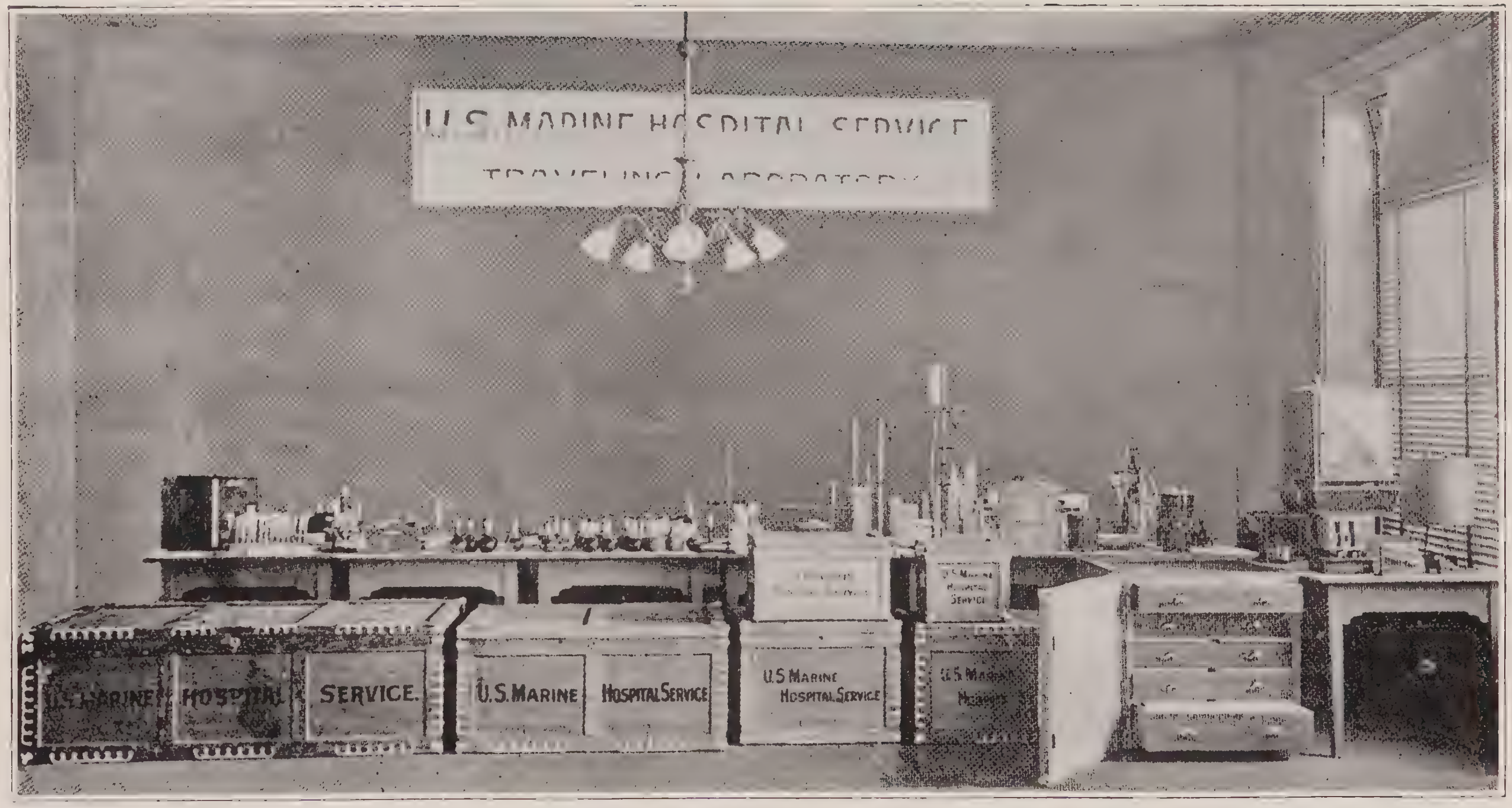
The following report is herewith submitted upon some preliminary work done with vaccine virus in the laboratory:

THE RELATIVE VALUE OF DRY AND GLYCERINATED VACCINE VIRUS.

Dry point No. 1 was carefully soaked in sterile water until all the dried virus was removed, and the water planted on an agar-agar plate and placed in the thermostat. 10,964 colonies grew. These colonies were studied and found to be (1) staphylococcus pyogenes aureus (virulent); (2) a short rod; (3) a coccus forming white


DAY OF MONTH
DAY OF DISEASE
TIME OF DAY
Pneumonia Horse LXXIV
Dec
Jan
Feb
Mar
May
June
5cc Mallein
2cc Tuberculin
10cc Pneumonia Toxin
Dead


DAY OF MONTH
DAY OF DISEASE
TIME OF DAY
A.M.
P.M.
TEMP
Clinical Notes.
Treatment
Centigrade Scale
27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 1 2 3 4 5 6 7 8 9 10 11 12 13
Pneumonia Horse No XV
108
107
106
105
104
103
102
101
100
99
NORMAL LINE
98
97
96
95
94
42
41
40
39
38
37
36
35
34
1 c.c. Mallein
2 c.c. Tuberculin
0.5 c.c. Pneumonia Toxin
5 day bouillon culture 70° C. Ur-unfiltered
1 c.c. Pneumonia Toxin
same
2 c.c. Pneumonia Toxin
5 day bouillon culture - Chloroform - unfiltered
5 c.c. Pneumonia Toxin
same
10 c.c. Pneumonia Toxin
5 day agar culture - suspended - same
20 c.c. Pneumonia Toxin
same
20 c.c. Pneumonia Toxin
same
30 c.c. Pneumonia Toxin
same
40 c.c. Pneumonia Toxin
same
50 c.c. Pneumonia Toxin
same
85 c.c. Pneumonia Toxin
same
100 c.c. Pneumonia Toxin
11 day bouillon culture
Chloroform - unfiltered
125 c.c. Pneumonia Toxin
same
125 c.c. Pneumonia Toxin
same
125 c.c. Pneumonia Toxin
same
140 c.c. Pneumonia Toxin
same
Died at 2.00 P.M.



THE PORTABLE LABORATORY OF THE MARINE-HOSPITAL SERVICE AS EXHIBITED AT THE 1900 INDIANAPOLIS MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

colonies and resembling staphylococcus pyogenes albues; (4) a pink growing sarcina; (5) a yellow growing sarcina. The staphylococcus pyogenes aureus was inoculated from bouillon culture into a mouse. The animal died in twenty-four hours, and the organism was found in the blood. The short rod and white coccus (albus?) caused superficial abscesses when inoculated subcutaneously in a mouse, but did not kill.

Dry point No. 2 was treated in the same way as No. 1, and gave 7,150 colonies of the same character.

Glycerinated virus on points was next examined. No. 1 gave 3,816 colonies of the following character: (1) Staphylococcus pyogenes aureus (not virulent); (2) a small rod; (3) a coccus forming white colonies; (4) several common air molds. One-half c. c. of a bouillon culture twenty-four hours old of the staphylococcus pyogenes aureus was inoculated into a mouse, producing abscesses only. No. 2 gave 1,866 colonies similar in character to No. 1.

For further comparison, a similar study was made with two capillary glass tubes containing glycerinated virus, with the following results:

Tube No. 1 gave 12 colonies. These were studied and found to consist of (1) a coccus—yellow colonies; (2) a coccus—white colonies; (3) a sarcina—white colonies; (4) a bacillus—resembling subtilis. The cocci were inoculated into mice and caused local abscesses in 2 cases, but no deaths.

Tube No. 2 gave 10 colonies of similar organisms to No. 1.

It will therefore be seen that the glycerinated lymph contains not only a fewer number of organisms, but those that are present are not virulent.

Respectfully submitted.

M. J. Rosenau.

In this connection the Lancet (April 28, 1900) says:

The objection to the practice of vaccination on the score that there is risk of concurrent septic inoculation is one which can have absolutely no locus standi while lymph properly prepared is capable of passing the strictest bacteriological test. Nor is the efficacy of the vaccine itself at all impaired by the glycerinizing process; indeed, it sometimes even seems to be rendered more marked. At the same time the freer the lymph is from extraneous pyogenic organisms the less marked will be those inflammatory concomitants which are so familiar to vaccinators.

Traveling Laboratory.

The Service is not infrequently called upon to make pathological and bacteriological studies of epidemic outbreaks of supposed cases of plague, yellow fever, cholera, etc. These outbreaks usually occur at out-of-the-way places where there are no facilities for work of this character, and a traveling laboratory has therefore long been a desideratum.

Several outfits destined for field work have been purchased by the Service, but not kept together on account of service exigencies. In assembling the present outfit certain definite factors were kept in view, which are briefly outlined in the following:

A traveling laboratory may be limited to the fewest possible instruments necessary to make a clinical diagnosis. This means, at least, a microscope, incubator, sterilizer, media, stains, and some glassware.

By adding a few more instruments and special apparatus we have more than the bare needs of clinical diagnosis—we have a complete working laboratory, capable of conducting almost any work in bacteriological and pathological research.

It is often necessary to take such a laboratory into the field or to a small town where there is no gas. Provision for such a contingency has therefore been made. For instance, the incubator, the dry wall sterilizer, the steam sterilizer, etc., are arranged to work with oil or gas.

The laboratory is packed into nine good strong cases made especially for the purpose. The cases are of stout pine, reenforced with oak battens and metal protection pieces on the corners and edges similar to those on a trunk. Each case is designed to hold certain definite parts of the outfit which are specified on a sheet tacked to the inside of the lid.

The laboratory is divided into the various boxes so that it may be conveniently separated should that be desirable. For instance, the microscope, with all its accessories complete, is in a box by itself. The same is true of the microtome, the steam sterilizer, the dry wall sterilizer, coal-oil burners, lamps, incubator, stains, chemicals, etc.

Therefore, any part of the outfit may conveniently be taken into the field without the delay of rearranging and repacking.

The incubator, sterilizers, and larger apparatus fit into the various cases by means of special guides, slides, and keys as a microscope fits into its case. This is a very great convenience and does away with the nuisance of packing material, such as excelsior, sawdust, straw, and the like.

The loss of half a day may be a serious matter in the diagnosis of a case of plague, or cholera, etc. Therefore the facility with which the laboratory may be packed and unpacked serves a very useful purpose in preventing unnecessary delay.

All the glassware is cleansed and sterilized and ready for work. There is sufficient of the ordinary media to make a start, so that if desired one may have a complete laboratory equipment in working order half an hour after arriving in the field.

A traveling laboratory must be ready to put on the train at any time. The outfit, therefore, is not used for any other purpose and is kept cased and ready for use at a moment's notice. Provision has been made to protect the instruments against dampness and rain, to which such an outfit is liable in transit or in the field. All the cases are lined with impervious oiled paper. The microscope and microtome boxes are lined with sheet zinc.

One of the cases consists of a series of drawers, like a bureau trunk, and may be used as a desk in the field.

A little book, giving an inventory of the laboratory with an index showing in what box each object may be found, accompanies the outfit, and for further convenience each box has a list of its contents on the lid.

It is not possible to enter upon a description of all the details of the traveling laboratory that has been assembled for the uses of the Service. A few of the main facts have been stated.

The following letter is self-explanatory:

TREASURY DEPARTMENT, M. H. S., HYGIENIC LABORATORY,
Washington, D. C., February 1, 1900.

SIR: I have the honor to submit herewith an inventory for a traveling laboratory designed for field work in diagnosing plague, yellow fever, influenza, diphtheria, cholera, epidemic dysentery, etc.

This outfit consists of the necessary apparatus for conducting ordinary bacteriological work and is especially selected with a view to convenient transportation.

In case of the appearance of plague, cholera, yellow fever, diphtheria, dysentery, or other epidemic diseases at places remote from the few laboratory centers this outfit can be shipped and installed as a satisfactory working laboratory in a short time.

The delay incurred in waiting for microscopes, culture media, chemicals, glassware, and other accessories necessary to conduct bacteriological work for the diagnosis of epidemic diseases is often very serious in its consequence. Definite knowledge of the exact nature of the first cases is the keynote for preventing epidemics.

The cost of this outfit, packed in special cases, will not exceed $1,100.

I have to respectfully recommend that two such outfits be purchased and packed ready for use.

Respectfully,
M. J. Rosenau,
Passed Assistant Surgeon, M. H. S., Director.

Supervising Surgeon-General Marine-Hospital Service,
Washington, D. C.

A complete list of the outfit is given herewith.

THE TRAVELING LABORATORIES OF THE MARINE-HOSPITAL SERVICE.

[Prepared under the direction of the Surgeon-General Marine-Hospital Service, by H. D. Geddings, passed assistant surgeon, Marine-Hospital Service.]

Possibly prior to, but certainly ever since, the early part of the year 1893 the desirability of a strictly portable bacteriological laboratory has been felt in the Marine-Hospital Service. The subject has received much thought and several tentative efforts have been made to achieve an end which seemed in every way most desirable. Charged as the Marine-Hospital Service is with the prevention of the introduction and spread of contagious and infectious diseases in the United States, it has been frequently called upon to investigate reported outbreaks of such diseases in widely separated parts of the country. Notably such instances have presented themselves in a reported outbreak of a suspicious disease simulating Asiatic cholera at the Arkansas penitentiary, at Little Rock, Ark., in January, 1893; again, in 1894, a Russian immigrant died at Cumberland, Md., under circumstances which led to the suspicion of the same disease, Asiatic cholera; a case of Asiatic cholera was also diagnosed and isolated in Jersey City, N. J. On more than one occasion in the immediate past suspicious cases of disease simulating bubonic plague have presented themselves at quarantine stations of the United States and have been the subject of clinical and bacteriological investigation by officers of the Marine-Hospital Service.

In some instances, especially in the larger cities, it is possible, having secured blood or fluids from the patient during life or material post-mortem, to avail oneself of the pathological and bacteriological laboratories which now exist, fortunately, in almost every one of the medical colleges of the United States. But even then it is not always agreeable to present oneself at a laboratory—where one is unknown—in the attitude of a suppliant for laboratory accommodations, and, moreover, as one engaged in the investigation of diseases which are notoriously dangerous and naturally dreaded.

But it is not always that such accommodations can be obtained, even were they asked for. The occurrence of infectious or contagious diseases may first make itself known at some spot remote from large educational centers, where the local practitioners of medicine, however courteous and however well disposed they may be, are not in possession of any laboratory facilities whatever, and where, in the case of small villages, there may not be even the most ordinary microscopic apparatus, to say nothing of the want of gas, running water, and other conveniences which have become an essential in a well-conducted or complete laboratory.

The matter of a portable or traveling laboratory, therefore, is one which has received earnest thought and careful consideration at the hands of the Marine-Hospital Bureau. In 1896 a portable laboratory was constructed and was used on several occasions, but the outfit therein contained was small and was never carried to a state of completeness or perfection.

In the latter part of the past year, 1899, the subject was revived and was brought to the attention of the Surgeon-General by the writer and P. A. Surg. M. J. Rosenau, the director of the hygienic laboratory of the Marine-Hospital Service. Our suggestions met with a ready acquiescence from the Surgeon-General, and we were authorized to prepare plans for a complete portable traveling laboratory which promised to be of much use and in much demand in view of the threatened invasion of the United States by the dreaded disease, bubonic plague.

It is evident that there are certain desiderata which a traveling laboratory must possess. First, it must be strictly portable; second, it must be complete in all of its appointments; third, it must be so arranged and packed that any piece of apparatus or particular line of apparatus may be accessible without unpacking the whole; fourth, it must be so arranged that pathological and bacteriological investigations can be pursued even in the remotest hamlets where there is no gas, running water, nor any other laboratory convenience; and, fifth, while complete in all of its appointments, its weight and bulk must not be excessive, nor must any one package be of such dimensions or such weight as to render it incapable of transportation not only by railroad but sometimes by wagon or other conveyance over rough country roads.

This end, it is believed, has been attained in the portable laboratory of the Marine-Hospital Service which has been completed, tried in practice, and which was exhibited at the June, 1900, meeting of the American Medical Association at Atlantic City, N. J. The apparatus is diversified, is in abundant quantity, and is in fact a complete laboratory which is so packed that the whole or any part of it may be erected at any point within half an hour after its receipt and work may at once be begun.

To show the completeness of the outfit, the general contents of the nine boxes which comprise the laboratory will be here enumerated in brief:

Box No. 1 contains an Arnold steam sterilizer of the well-known Boston board of health pattern and of the usual size. Box No. 2 contains an improved dry-air sterilizer with sheets of asbestos for protecting from radiated heat the box or table upon which it may be placed. Both of these sterilizers can be heated by gas if it is obtainable; if not, oil heaters are provided. Box No. 2 contains in addition a full line of graduated glass-stoppered cylinders, ranging from 25 c. c. to 1,000 c. c. Box No. 3 is arranged after the manner of a bureau, containing five drawers. These drawers contain a full line of small glassware, a large number of test tubes already plugged with cotton and sterilized, flasks of all of the ordinary culture media, as agar-agar, gelatine, agar gelatine, bouillon, blood serum, etc. Petri plates are supplied in large number. The box contains also pipette-stoppered bottles for stains, the stains themselves in other bottles, inoculating needles, hypodermic syringes for animal inoculation, Sternberg bulbs for the collection of blood and fluids, and various small apparatus for the investigation of urine, blood, and other fluids of the body.

Box No. 4 contains general laboratory supplies, such as rubber tubing, wire gauze, filter paper, cork borers, and, in addition, contains a quite complete outfit of such cooking utensils as are in ordinary use in a bacteriological laboratory for the preparation of media. It also contains anaerobic apparatus for the investigation and cultivation of such pathogenic organisms as may do best under anaerobic conditions, a complete post-mortem case, and other small articles too numerous to mention in detail.

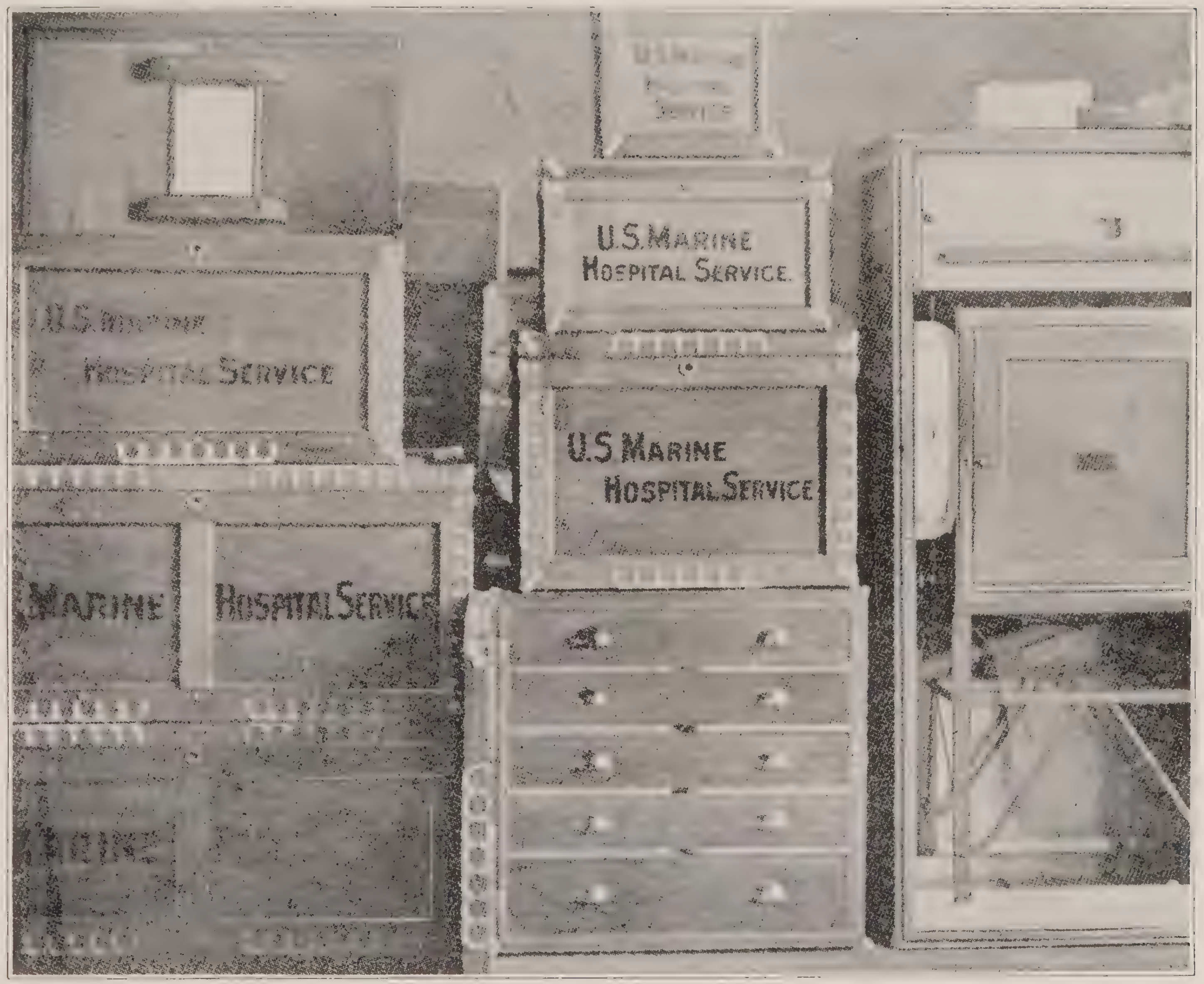
Box No. 5 contains all of the heavy hardware and heavy metallic apparatus which are of such general utility in a laboratory, and which present such difficulties ordinarily in packing and transportation. Here we find large coal-oil burners for heating the sterilizers, a paraffin bath for the embedding and mounting of pathological material, filter and funnel stands with all the usual and desirable attachments and adjustments; alcohol blast lamps for the extemporaneous manufacture of small articles of glassware are provided. In fact, in this box will be found almost everything of a heavy, cumbrous nature desirable in a pathological laboratory.

Box No. 6 contains an incubator of the most desirable form and pattern, complete in itself and capable of being maintained at uniform temperatures either by gas or petroleum. This incubator is neither of the very largest size nor is it one of those small, cramped apparatus which are advertised in catalogues as being intended for the physician in his office. It is an apparatus of ample size and would furnish abundant incubating room for one or two investigators in any line of work.

Box No. 7 contains a Schanze microtome of good size and complete in all of its appointments, being secured within the packing case in its own box and nothing else being packed with it; this case need not be opened unless the necessity for section work should arise.

Box No. 8 is deservedly one which is regarded with particular pride by the designers of the traveling laboratory. It contains a case which is the receptacle for one of the largest and most improved of Zeiss's justly celebrated microscopes, a large microphotographic stand of Zeiss, with all the recent improvements, a full line of apochromatic objectives ranging from the 16 mm. (two-thirds inch) to the 2 mm. (one-half inch) of 1.40 numerical aperture, and the most improved "swing-out" condenser with iris diaphragms. An instrument such as this was provided for the reason that much might sometimes depend upon diagnoses arrived at through microscopic observation. A cheaper instrument might have been supplied, but in investigations involving, as these sometimes will, the life and well-being of an entire community it was felt that the best product of modern mechanical and optical science was none too good, although its price might have been regarded as a serious objection.

Box No. 9 is exclusively devoted to chemicals and contains in moderate quantity a complete line of those reagents which are in daily use in bacteriological and pathological laboratories; paraffin for the embedding and sectioning of diseased tissues



THE PORTABLE LABORATORIES OF THE MARINE-HOSPITAL SERVICE PACKED AND READY TO BE SHIPPED, WITH THE EXCEPTION OF THE PACKAGE CONTAINING THE STERILIZER, THE LID OF WHICH IS NOT SHOWN IN THE PHOTOGRAPH.

and a very complete line of anilin dyes in substance. The solutions of these dyes are contained in the large stock bottles which have previously been mentioned as a part of the contents of box No. 3.

The total weight of the outfit as packed is about 1,400 pounds. Each case is of the most thorough and substantial construction, with dovetailed corners, protected by battens of hard wood, these battens secured at the corners and protected from injury along the edges by metal strips or guards of light but substantial construction. The boxes are furnished with substantial locks. The covers, in addition to locks and hinges, are secured by screws which work through and into metal sockets.

A conspicuous feature of the entire outfit is the absence of ordinary packing material, such as hay, straw, sawdust, "excelsior," and the like. Each piece of apparatus is secured in its appropriate box or case by guides and specially designed clamps, secured by thumbscrews, quite as a high-grade microscope slides and fits into its case and is secured when the door or cover of the case is locked.

As a practical test it may be mentioned that the entire apparatus was shipped from Washington to Atlantic City, N. J., by express, that it was there unpacked and exhibited, and that during the exhibition, word having been received of the occurrence of a case of disease simulating bubonic plague at the Reedy Island Quarantine Station, it was repacked and shipped to that point, portions of it there used, and the entire apparatus then reshipped to Washington, where it arrived without damage to any piece of apparatus and with two small flasks constituting the entire breakage.

It is believed with entire confidence that this laboratory can be transported to any part of the United States and that, be the seat of operations a city of a million inhabitants or a village of half a dozen houses, practical and complete bacteriological and pathological work can be done with it at the site of any outbreak.

In addition to the ordinary bacteriological outfit a certain quantity of apparatus has been added which will enable the investigator, should he be so disposed or should it seem desirable, to pursue the higher lines of investigation into toxin production by microorganisms, for which purpose special flasks, filtering apparatus, etc., have been provided in limited though sufficient quantity.

A laboratory complete in all of its appointments and identical with the above in its principal features, but with some difference as to the method of packing, was sent to Manila in May, 1900, for use in the Philippine Islands, there to be used in the investigation of suspected cases of contagious and infectious diseases at the various ports of entry in the islands or in original investigations in the tropical diseases so numerous in these dependencies of the United States and which offer such a rich field for pathological investigation. It is considered a valuable adjunct to the resources of the Marine-Hospital Service.

For the sake of completeness an itemized list of the contents of each box is herewith appended, and it is hoped that the perusal of this article and a review of the contents of the boxes may suggest improvements and furnish ideas for further traveling or portable laboratories, either more extensive or less complete, as the case may be, than the three now in the possession of the Marine-Hospital Service.

CONTENTS OF THE TRAVELING LABORATORY

Box No. 1.

1 Arnold sterilizer.
2 Berkefield filters, complete.
2 culture flasks, Miquel, large.
2 culture flasks, Chamberland's, large.

Box No. 2.

1 sterilizer, dry heat.
1 piece of asbestos for above.
1 burette stand.
2 burettes.
1 cylinder graduated glass stopper, 1,000 c. c.
1 cylinder graduated glass stopper, 500 c. c.
1 cylinder graduated glass stopper, 200 c. c.
1 cylinder graduated glass stopper, 100 c. c.
1 cylinder graduated glass stopper, 50 c. c.
1 cylinder graduated glass stopper, 25 c. c.

Box No. 3.

- Drawer 1:
  - 33 Florentine flasks, 250 c. c.
  - 6 Erlenmeyer flasks, 50 c. c.
  - 12 fermentation tubes.
- Drawer 2:
  - 4 culture flasks, Miquel's.
  - 4 culture flasks, Chamberland's.
  - 28 flasks media, 250 c. c. each.
  - 25 blood-serum tubes.
  - 4 Pasteur pipettes.
  - 75 Petri dishes.
- Drawer 3:
  - 2 thermoregulators, Novy's.
  - 24 stain bottles.
  - Pipettes.
- Drawer 4:
  - 12 bottles, 65 c. c., glass stoppers.
  - 2 filter plates, Witte's.
  - 2 thermometers, clinical.
  - 2 thermometers, —30 to 100 C. and F.
  - 1 thermometer, maximum and minimum.
  - 2 thermometers, 10 to 50 C. and F.
  - 2 thermometers, —10 to 300 C. and F.
  - 2 albuminometers, Esbach.
  - 3 preparation jars.
  - 22 test glasses, 2-ounce.
  - 11 test glasses, 1-ounce.
  - 1 platinum spatula.
  - 2 alcohol lamps, glass.
  - 1 ureometer.
  - 1 pair scissors, 10-inch.
  - 2 pairs scissors, 5-inch.
  - 1 pair scissors, straight, fine point.
  - 1 pair scissors, curved, fine point.
  - 1 pair forceps, crossed serrations.
  - 2 scalpels, wood handle.
  - 6 wax pencils.
  - 1 dozen test-tube swabs.
  - 1 aspirator, Chapman's.
  - 2 files, three-cornered.
  - 12 pinch cocks, Mohr's.
  - 12 pinch cocks, Hoffman's improved.
  - 2 gross glass slides.
  - 3 ounces cover glasses.
  - 500 labels, 1 by 1 inch.
  - 4 inoculating needles.
  - 2 oil-immersion bottles.
  - 12 watch glasses.
  - 1 syringe, 20 c. c.
  - 1 syringe, 10 c. c.
  - 2 syringes, 5 c. c.
  - 2 syringes, 2 c. c.
  - 2 syringes, 1 c. c.
  - 10 grams platino-irido wire.
- Drawer 5:
  - Sternberg bulbs.
  - Test tubes, 7 by $\frac{3}{4}$ inches.
  - Test tubes, 6 by $\frac{1}{2}$ inches.
  - 7 wire baskets.
  - 1 nest beakers.
  - 1 graduate glass, 250 c. c.
  - 1 graduate glass, 100 c. c.
  - 1 graduate glass, 50 c. c.
  - 1 graduate glass, 25 c. c.
  - 1 barrel glass stirrers.

Box No. 4.

In 6-gallon agate stock pot:
  Rubber tubing.
  Wire gauze.
  Filter paper, round.
  1 file, three-cornered.
  1 cork borer sharpener.
  3 potato knives.
  1 cork knife.
  1 cork borer set.
  1 saucepan.
  6 pieces asbestos, 6 by 6 inches.
  Rubber stoppers.
  2 mortars and pestles.
  1 centrifuge, complete.
In large anatomical jar:
  1 anatomical jar, small.
  1 Novy's apparatus for petri plates (cock in damp chamber).
2 evaporating dishes, porcelain.
2 damp chambers.
6 bottles U. S. M. H. S., 250 c. c.
3 mouse jars.
2 siphon bottles.
3 agate dishes.
1 Novy's apparatus for tubes.
6 filter flasks, 2 each 1,000, 500, 250 c. c.
2 Erlenmeyer flasks, 4,000 c. c.
1 hydrogen apparatus, Melville jar.
1 wash bottle.
Glass tubing.
1 gas pressure regulator, Novy's.
1 saucepan.
Filter paper, square.
2 stands for stain bottles.
Rubber pressure tubing.
1 potato borer.

Box No. 5.

1 burner, coal oil.
1 paraffin bath.
1 water bath.
4 primus burners, complete.
1 funnel stand, large.
1 funnel stand, small.
11 rings for stands.
1 alcohol burner, Barthel's.
1 alcohol blast lamp.
1 warming table.
4 tripods.
1 burner, radial.
2 burners, Bunsen's, low form.
2 burners, Bunsen's, with regulator.
2 burners, Bunsen's, ordinary.
1 thermoregulator, Roux.
8 clamp adjusters.
8 clamps.
1 potato brush.

Box No. 6.

1 incubator with thermoregulator, lamp, etc.

Box No. 7.

1 microtome, Schanze, complete.

Box No. 8.

1 microphotographic stand with improved upper section.
1 objective, apochromatic, 16 m.
1 objective, apochromatic, 4 mm.
1 objective, apochromatic, 2 mm. ap. 1.30.
1 objective, apochromatic, 2 mm. ap. 1.40.
1 ocular, compensating, No. 2.
1 ocular, compensating, No. 4.
1 ocular, compensating, No. 6.
1 ocular, compensating, No. 8.
1 ocular, compensating, No. 12.
1 ocular, compensating, No. 18.
1 swing-out condenser.
1 triple nose piece.
1 mahogany case for oculars and objectives.

Box No. 9.

200 grams acetic acid, glacial.
200 grams agar agar.
5,000 grams alcohol, 95 per cent.
100 grams ammonium hydrate.
2 ounces Canada balsam in xylol.
100 grams anilin oil.
200 grams borax.
500 grams carbolic acid.
1 ounce celloidin, Scheering.
500 grams chloroform, Squibb's.
25 grams eosin, water solution.
500 grams ether.
200 grams meat extract.
50 grams fuchsin.
500 grams gelatin.
50 grams gentian violet.
200 grams glucose.
500 grams glycerin.
10 grams hematin.
50 grams hematoxylin.
500 cubic centimeters hydrochloric acid.
10 grams iodine.
100 grams lactose.
100 grams litmus.
1,000 grams mercuric chloride.
1,000 grams mercuric chloride tablets.
200 grams nitric acid.
50 grams methylene blue.
100 grams paraffin, 40 C.
100 grams paraffin, 49 C.
100 grams paraffin, 52 C.
100 grams paraffin, 55 C.
200 grams peptone.
200 grams sodium carbonate.
200 grams sodium hydrate.
200 grams sulphuric acid.
100 grams vaselin.
500 grams xylol.
250 grams alum.
20 grams thionin.
20 grams Bionde-Heidenheim.
25 grams acid fuchsin.
25 grams orange G.
25 grams dahlia.
25 grams methyl green.
2,500 grams absolute alcohol.
100 grams oxalic acid.
250 cubic centimeters Gram's solution.

250 cubic centimeters oil origanum.
100 grams sodium chloride.
100 grams bromine.
6 pounds absorbent cotton.
500 cubic centimeters Esbach's reagent.
1 cake bichloride soap.

Two complete outfits, as specified above, have been purchased in accordance with Department approval. Both of the outfits have been cased and are complete and ready for use. One was taken to Atlantic City and shown in the pathological section of the American Medical Association, June 5–8, 1900, and was also exhibited before the American Public Health Association, at Indianapolis, October 25–29, 1900. One complete outfit was also sent to P. A. Surg. J. C. Perry, at Manila, in care of Assistant Surgeon Fricks.

SERVICE EXHIBITION AT BUFFALO.

The preliminary arrangements for a Service exhibit at the Pan-American Exposition at Buffalo, 1901, having been placed in my hands, I have to report that the following outline has been approved by yourself. The correspondence is submitted, it being self-explanatory.

PAN-AMERICAN EXPOSITION 1901,
Buffalo, N. Y., U. S. A., March 30, 1900.

DEAR SIR: The authorities of the Pan-American Exposition desire especially that it shall be characterized by the widest educational completeness possible. Among other contemplated features tending especially in the direction indicated, is that of an exhibit of sanitary methods and appliances adopted and in use throughout the United States and in other countries of the Western Hemisphere.

From an educational point of view, certainly nothing would more surely tend to benefit those who will attend the exposition than such a feature, if it can be successfully and adequately carried out.

The available space within the buildings of the exposition will be largely sought after, and it would appear, therefore, that such an exhibit, if undertaken, should be thoroughly systemized under, possibly, the two following heads:

First, an exhibit illustrative of the procedure had by the different cities of the Western Hemisphere in all matters appertaining to sanitation; this exhibit to be composed of the blank forms used by each city participating in the exhibit and of photographs of all their public works devoted to sanitation, with a reference index to the whole and such comparative tables and data as will thoroughly explain the sanitary system in vogue in such city. This portion of the exhibit should be made in album form of such size and shape as will enable the public to easily see and study the general subject elaborated; it should also include mortality tables and, in fact, all information that can be graphically illustrated and that will tend to show the status and character of sanitary methods adopted and in force in such city, together with their results, expense, and the method of administration in force.

The second portion of the exhibit should include exhibits of bacteriological work, the methods and devices used in disinfection, and of processes and appliances adopted or in use in the city in connection with the subject.

Having reference to the above and to the general good such an exhibit would accomplish, I shall be especially gratified to be advised with regard to your views concerning the desirability of our undertaking such an exhibit, and especially I will be pleased to know something with regard to the extent to which we might anticipate the cooperation of your office in such work, provided it shall be undertaken by us.

In this connection I shall be glad to have any suggestion you may care to submit thus brought to your attention.

Very respectfully, yours,

WM. T. BUCHANAN,
Director-General.

WALTER WYMAN, M. D.,
Washington, D. C.

April 10, 1900.

Dear Sir: I have given careful consideration to your letter of March 30, and desire to state, in reply, that I am fully impressed with the desirability and importance of a sanitary exhibit at the Pan-American Exposition to be held at Buffalo in 1901.

The more I revolve this question in my mind the more I am convinced that the great importance and value of such an exhibit deserves special prominence; that is, a separate building.

Our neighbors of Central and South America have notoriously unsanitary cities, which afford a breeding place for yellow fever—a constant and growing menace to our health and commerce.

The sanitation of cities, of houses, of farms, of ships, etc., has now reached the dignity of a science, and an exhibition showing the great benefits derived from pure air, food, and water, and from drainage, ventilation, etc., would, in my opinion, have great practical value and far-reaching effects.

I submit herewith a memorandum intended to suggest an outline of the main topics and general scope of such an exhibit. The topics mentioned in this memorandum all lend themselves to illustration for exhibition purposes by means of models, charts, photographs, industrial exhibits, and the like. In order to illustrate my idea in part, I will mention how a few of the topics may be graphically illustrated with models. For example:

A model showing how a well is contaminated with typhoid fever or cholera from a neighboring cesspool;

A model of a sanitary town alongside a model of an unsanitary town, with the figures contrasting the prevailing diseases and death rates;

Models of practical tenement houses to replace the old, ramshackle, unsanitary rookeries which crowd the congested portions of some of our cities;

A model showing the arrangement of central sand filtration for the water supply of cities, and figures showing how such purification of water diminishes the number of cases of and the death rate from typhoid fever, children's diarrhea, dysentery, and gastro-intestinal diseases in general.

I leave it to your own imagination to conceive how much could be made out of the pure-food section alone, a demonstration of adulterants, and an exhibit of the many so-called pure-food products now on the market, and an illustration of the great subject of food economy for the poor.

Our own exhibit in the Government building will consist of the following:

Model of quarantine stations.

Display of improved disinfecting machinery, showing use of steam, sulphur, formaldehyde, and chemical disinfectants in solution, etc.

Model of floating quarantine plant (disinfecting barge in use at Habana).

Field bacteriological outfit in operation.

Model of yellow-fever detention camp.

Display illustrating the cause and means of spread of infectious diseases.

X-ray apparatus.

Model of Marine-Hospital operating room.

Model of Marine-Hospital Service ward, illustrating method of treatment of patients.

Photographs and charts illustrating marine hospitals, division of vital statistics, domestic quarantines, Porto Rican quarantines, Cuban quarantines, Hawaiian quarantines, Philippine quarantines, immigration service, sanitarium for tuberculosis, foreign inspection service.

This is such a large subject that I can not hope to more than outline my views in a letter, and therefore I will send you a recent article which I published in The Forum on "Quarantine and sanitation," and also an address recently delivered by me at Savannah on "Our sanitation obligations," which go more fully into the subject.

The Marine-Hospital Bureau being the only Government organization dealing with quarantine and sanitation, and these subjects having been made my life study, my interest in them prompts me to offer you all the aid in my power to make an exhibit of the kind a success. It will, of course, be a great undertaking to get up an exhibit on the plan that I have outlined. It will be busy work for a corps of men with an able head from now until the exposition opens.

Respectfully,

Walter Wyman,
Surgeon-General M. H. S.

William T. Buchanan,
Director-General of the Pan-American Exposition, 1901, Buffalo, N. Y.

[Inclosures.]

QUARANTINE.

A.—Maritime quarantine.
B.—Interstate quarantine.
C.—Municipal quarantine.

SANITATION.

- A.—Air:
  1. Composition.
  2. Contamination.
  3. Ventilation.
  4. Influence of temperature, pressure, humidity, etc., upon health.
- B.—Water:
  1. Sources.
  2. Impurities.
  3. Diseases due to impure drinking water.
  4. Storage and purification.
  5. Methods of testing chemical and biological impurities.
- C.—Food:
  1. Kinds of food.
  2. Quantity and character best suited for health.
  3. Cooking.
  4. Adulterations—methods of detecting, etc.
  5. Exhibition of composition and manufacture of pure-food products.
- D.—Soil:
  1. Character of soils.
  2. Ground air, ground water, etc.
  3. Diseases spread by impurities of the soil.
  4. Subsoil drainage.
  5. Paving.
- E.—Wastes, their removal and disposition:
  1. Sewage
  2. Rubbish.
  3. Street sweepings.
  4. Garbage.
- F.—House sanitation:
  1. Room sanitation.
  2. Heating, lighting, ventilation, etc.
  3. Model tenements.
- G.—Ship sanitation:
  1. Diseases on shipboard.
  2. Ships as carriers of disease.
  3. The ship as a habitation, etc.
- H.—Laws and ordinances:
  1. Municipal.
  2. State.
  3. National.
- I.—Communicable diseases:
  - Habitat, causes, prevention, treatment, etc., of—
    1. Smallpox.
    2. Cholera.
    3. Plague.
    4. Yellow fever.
    5. Leprosy.
    6. Typhoid fever.
    7. Scarlet fever, etc.
- K.—Miscellaneous:
  - Disposal of the dead—
    1. Cremation.
    2. Earth burial.
    3. Burial with view to rapid decomposition.
  - Clothing.
  - Baths.
    1. Private.
    2. Public.
  - Physical exercise: Charts and measurements.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, February 20, 1900.

SIR: I inclose herewith a memorandum showing the scope and character of the exhibit this Bureau desires to make at the Pan-American Exposition to be held at Buffalo, N. Y., from May to November, 1901.

Respectfully,
WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

H. W. HILLS,
Assistant Superintendent Treasury Building, Washington, D. C

Memorandum.

	Estimated price.
Model of quarantine station, 10 by 10 feet	$1,500
Display of improved disinfecting machinery, showing use of steam, sulphur, formaldehyd, and chemical disinfectants in solution, etc., 30 by 15 feet	3,000
Model of floating quarantine plant (disinfecting barge in use at Habana), 4 by 10 feet	1,500
Field bacteriological outfit in operation, 20 by 10 feet	1,000
Model of a yellow fever detention camp, 10 by 10 feet	1,000
Display illustrating the cause and means of spread of infectious diseases, 10 by 5 feet	200
X-ray apparatus, 5 by 5 feet	250
Model of Marine-Hospital Service operating room, 10 by 15 feet	1,500
Model of Marine-Hospital Service ward, illustrating method of treatment of patients, 10 by 10 feet	500
Photographs and charts illustrating marine hospitals, division of vital statistics, domestic quarantines, Porto Rican quarantines, Cuban quarantines, Hawaiian quarantines, Philippine quarantines, immigration service, sanatorium for tuberculosis, foreign inspection service, 10 by 10 feet	1,000
Freight	500
Attendance	720
Subsistence for officer and steward	1,000
Janitor	200
Transportation	150
Installing exhibit, packing, and miscellaneous	1,000
Total	15,020

Space, 1,315 square feet.

DISINFECTING BARGES.

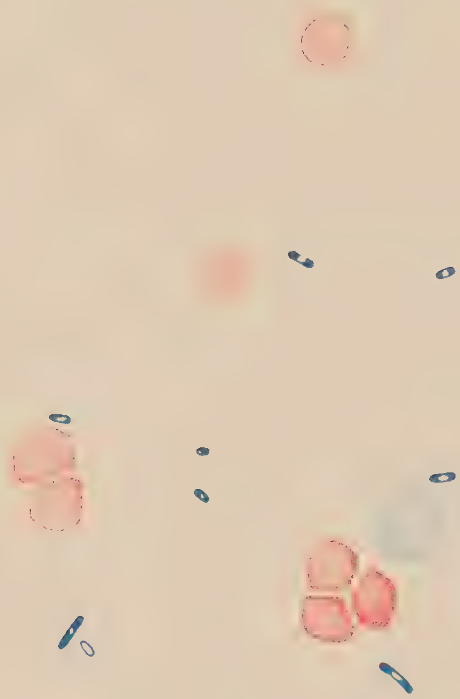
The subject of disinfecting barges became part of the work of the hygienic laboratory from its relation to the public health and quarantine.

Drawings were made both by Dr. Geddings and myself of barges that are intended for use at our quarantine stations.

An article on "Quarantine barges," dealing with the principle involved in their construction, etc., has been prepared and is published under the head of "Contributed articles."

LABORATORY BULLETINS.

In accordance with the determination, as mentioned in the last annual report of the Service, to publish the results of the scientific work of the laboratory in pamphlet form, and when thus published to refer to but not to re-publish the same in the annual reports, a series of laboratory bulletins have been started during the year. The first two bulletins, entitled, respectively, "Preliminary notes on the viability of the *Bacillus pestis*" and "Formalin disinfection of baggage without apparatus," have already been published.



m. J. R.

Bacillus Pestis. Rabbit's Blood. X 1000.

AN INVESTIGATION OF THE MERITS ON SULPHUR DIOXID AS A DISINFECTANT.

Treasury Department,
Office of the Supervising Surgeon-General M. H. S.,
Washington, August 30, 1900.

Sir: In view of the wide discrepancy of opinion with regard to the value of sulphur as an agent for disinfection and as to the quantity to be used to accomplish an efficient disinfection, and further, because there has been, so far as I am aware, no scientific investigation of this matter for at least ten years, I am of the opinion that such investigation should be made, and the more so because from the reports of certain parties it would appear that a 4 per cent sulphur dioxid gas is efficient, and from my own knowledge I am aware that a 10 per cent dioxid gas is extremely destructive not only to textiles but to wooden and metallic surfaces.

I therefore have the honor to recommend that a scientific investigation be undertaken in order to demonstrate:

First. The efficiency of this gas as a disinfectant.

Second. The minimum percentage necessary to do efficient disinfection for yellow fever, for diphtheria, for cholera, and for plague.

Third. To demonstrate the minimum exposure to this minimum percentage in order that disinfection of vessels may be reduced to the smallest possible basis of expense, damage, and loss of time.

Respectfully,

J. H. White,
Surgeon, M. H. S.

Surgeon-General Marine-Hospital Service.

The foregoing recommendations having met with the approval of the Bureau, an order was issued to the acting director of the laboratory, and his report, entitled "Sulphur dioxide as a germicidal agent," has been published as Laboratory Bulletin No. 3.

VIABILITY OF BACILLUS PESTIS.

Since the publication of the Preliminary Notes on the Viability of the *Bacillus pestis*, Laboratory Bulletin No. 1, the work on that subject has been continued and the following additional results obtained:

Plague blood on various objects.

[In cold chamber, 17° to 19° C. Heart's blood of rabbit No. 39.]

BLOOD FROM PLAGUE RABBIT ON WHITE PINE SPLINTERS.

Time.	Result.	Remarks.
1 day	+	
6 days	+	
9 days	−	
12 days	−	
18 days	−	

BLOOD OF PLAGUE RABBIT ON FILTER PAPER.

1 day	+	
6 days	+	
9 days	−	
12 days	−	
18 days	−	
34 days	−	

BLOOD OF PLAGUE RABBIT ON CRASH.

1 day	+	Contaminated.
6 days	−	
9 days	−	
12 days	−	
18 days	−	

Plague blood on various objects—Continued.

BLOOD OF PLAGUE RABBIT ON SPONGE.

Time.	Result.	Remarks.
1 day	+	
6 days	+	
9 days	+	
12 days	–	
18 days	–	Contaminated.
31 days	–	

Plague cultures on various objects, dried and moist.

[In dark room. 23° to 29° C.]

BOUILLON CULTURE ON FILTER PAPER.

[Dried in Petri dish. Exposed in dark room—23° to 28.8° C. Small squares of filter paper inoculated with 3-days-old bouillon culture.]

Time.	Result.	Remarks.
3 days	+	Dry.
8 days	—	
14 days	—	

Still under observation.

BOUILLON CULTURE ON FILTER PAPER.

[Kept moist in Petri dish by means of cotton pledgets soaked with sterile water. Exposed in dark room at 23° to 28.8° C. Small squares of filter paper inoculated with 3-day-old bouillon culture.]

3 days	+	
8 days	+	

Still under observation.

BOUILLON CULTURE ON SPONGE.

[Dried in Petri dish. Exposed in dark room at 23° to 28.8° C. Small pieces of sponge inoculated with 3-day-old bouillon culture.]

3 days	+	
8 days	+	Still moist.
14 days	+	

Still under observation.

BOUILLON CULTURE ON SPONGE.

[Kept moist in Petri dish by means of cotton pledgets soaked with sterile water. Exposed in dark room at 23° to 28.8° C. Small pieces of sponge inoculated with 3-day-old bouillon culture.]

3 days	+	
8 days	+	
14 days	–	

Still under observation.

BOUILLON CULTURE ON CRASH.

[Dried in a Petri dish. Exposed in dark room at 23° to 28.8° C. Three-day-old bouillon culture used to inoculate little squares of crash.]

3 days	–	(Control taken first day grew.)
5 days	–	Contamination with a mold.
8 days	–	Contamination with a mold. Still moist.
14 days	–	Contamination with a mold.

Plague cultures on various objects, dried and moist—Continued.

BOUILLON CULTURE ON CRASH.

[Kept moist in Petri dish by means of cotton pledget soaked with sterile water. Exposed in dark room, 23° to 28.8° C. Three-day-old bouillon culture used to inoculate little squares of crash.]

Time.	Result.	Remarks.
3 days	+	
8 days	+	
14 days	—	Contaminated, mold.

Still under observation.

BOUILLON CULTURE ON BONE DUST.

[Dried in dark room, 22° to 28.8° C. This bone dust came from the cargo of a vessel from Bombay. Inoculated to saturation with a 3-day-old bouillon culture of plague. Kept in a small vial, loosely stoppered with cotton so as to permit drying.]

1 day	+	
4 days	+	Dry. Killed a mouse in 3 days.
6 days	—	
11 days	—	
17 days	—	
25 days	—	

BOUILLON CULTURE ON PIECES OF BONE.

[Dried in dark room, 22° to 28.8° C. Dried femur of ox was broken into small bits, sterilized, and saturated with a 3-day-old bouillon culture of plague. Dried in a Petri dish.]

1 day	+	
6 days	+	Dry.
11 days	—	
17 days	—	
25 days	—	

BOUILLON CULTURE ON LOAM.

[Dried in dark room, 22° to 28.8° C. Three-day-old bouillon culture. The loam sterilized and kept in a small vial, saturated with the culture, and stoppered with cotton so that it soon dried out.]

1 day	+	
6 days	—	
11 days	—	Dry.
17 days	—	Dry.
25 days	—	

BOUILLON CULTURE ON WHITE FILTER PAPER.

[Three-day-old bouillon culture. Dried in dark room, 21° to 29° C.]

2 days	+	Killed mouse in 18 hours. Pure.
4 days	—	
6 days	—	
8 days	—	
10 days	—	
12 days	—	
14 days	—	

BOUILLON CULTURE ON CRASH.

[Three-day-old bouillon culture. Dried in dark room, 21° to 29° C.]

2 days	—	
4 days	—	
6 days	—	
8 days	—	
10 days	—	
12 days	—	
14 days	—	

Plague cultures on various objects, dried and moist—Continued.

BOUILLON CULTURE ON SPONGE.

[Three-day-old bouillon culture. Dried in dark room, 21° to 29° C. The small pieces of sponge inoculated with bouillon culture, kept in a Petri dish, and soon dried out.]

Time.	Result.	Remarks.
2 days	+	
4 days	+	
6 days	+	
8 days	+	
12 days	+	
14 days	+	
21 days	+	
31 days	+	
43 days	+	

Still under observation.

BOUILLON CULTURE ON WHITE PINE SPLINTERS.

[Three-day-old bouillon culture. Dried in dark room, 21° to 29° C.]

2 days	–	
4 days	–	
6 days	–	
8 days	–	
10 days	–	
12 days	–	
14 days	–	

AGAR CULTURE ON BONE DUST.

[Three-days-old bouillon culture, dried in dark room 21° to 29.1° C. Inoculated with a suspension of agar growth from heart's blood of mouse No. 12. The bone dust came from the cargo of a vessel from Bombay. It was sterilized and inoculated with the culture and kept in a small vial tightly corked so as to remain moist.]

1 day	+	Moist.
3 days	+	Do.
5 days	+	Do.
7 days	+	Do.
14 days	+	Do.
31 days	+	Do.
43 days	+	Do.

Still under observation.

BLOOD FROM PLAGUE RABBIT ON FILTER PAPER.

[Dried in dark room 21° to 29.1° C. Heart's blood of rabbit No. 36.]

2 days	+	
4 days	+	Inoculation into rabbit; died over night; pure.
6 days	–	
13 days	–	
25 days	–	

BLOOD FROM PLAGUE RABBIT ON CRASH.

[Dried in dark room, 21° to 29.1° C. Heart's blood of rabbit No. 36.]

2 days	+	
4 days	+	
6 days	–	
13 days	–	
25 days	–	

Plague cultures on various objects, dried and moist, in the cold chamber, 17° to 19° C.

BOUILLON CULTURE ON FILTER PAPER.

[Dried in Petri dish. Small squares of filter paper inoculated with 3-day-old bouillon culture.]

Time.	Result.	Remarks.
3 days	+	Dry.
8 days	+	
14 days	–	Mold contamination.

Still under observation.

BOUILLON CULTURE ON FILTER PAPER.

[Kept moist in Petri dish by means of cotton pledget soaked with sterile water. Small squares of filter paper inoculated with 3-day-old bouillon culture.]

3 days	+	
8 days	+	
14 days	+	

Still under observation.

BOUILLON CULTURE ON SPONGE.

[Dried in Petri dish. Small pieces of sponge inoculated with 3-day-old bouillon culture.]

3 days	+	
8 days	+	Moist.
14 days	+	

Still under observation.

BOUILLON CULTURE ON SPONGE.

[Kept moist in Petri dish by means of cotton pledget soaked with sterile water. Small pieces of sponge inoculated with 3-day-old bouillon culture.]

3 days	+	
8 days	+	Mold contamination.
14 days	+	

BOUILLON CULTURE ON CRAS

[Dried in Petri dish. Three-day-old bouillon culture used to inoculate little squares of crash.]

3 days	+	Still wet.
8 days	+	
14 days	+	

Still under observation.

BOUILLON CULTURE ON CRASH.

[Kept moist in Petri dish by means of cotton pledget soaked in sterile water. Three-day-old bouillon culture used to inoculate little squares of crash.]

3 days	+	
8 days	+	
14 days	+	Contaminated—mold.

Still under observation

Plague cultures on various objects, dried and moist, in the cold chamber, 17° to 19° C.—Continued.

BOUILLON CULTURE ON BONE DUST.

[Bone dust from Bombay, saturated with a 3-day-old bouillon culture. Kept in small vial loosely stoppered with cotton. Soon dried out.]

Time.	Result.	Remarks.
1 day	+	Moist.
4 days	+	Dry.
6 days	+	Dry. Killed mouse over night.
11 days	–	
17 days	–	
35 days	–	

BOUILLON CULTURE ON PIECES OF BONE.

[Dried femur of an ox was broken into bits, sterilized, and saturated with a 5-day-old bouillon culture of plague. Kept in a Petri dish.]

1 day	+	
6 days	+	
11 days	–	
17 days	+	Delayed growth.
25 days	–	

BOUILLON CULTURE IN LOAM.

[Three-day-old bouillon culture used. The loam sterilized and kept in a small vial, saturated with the culture and stoppered with cotton, so as to allow it to dry. The cotton plug was tight, so that it dried slowly.]

1 day	+	Moist.
11 days	–	Do.
17 days	–	Do.
25 days	–	Do.

BOUILLON CULTURE ON WHITE FILTER PAPER.

[Three days' old bouillon culture.]

2 days	–	
4 days	–	Contaminated with a long rod.
6 days	–	
8 days	–	
10 days	–	
12 days	–	
14 days	–	

BOUILLON CULTURE ON CRASH.

[Three days' old bouillon culture.]

2 days	–	
4 days	–	
6 days	–	
8 days	–	
10 days	–	
12 days	–	
14 days	–	

Plague cultures on various objects, dried and moist, in the cold chamber, 17° to 19° C.—Continued.

BOUILLON CULTURE ON SPONGE.

[Three-day-old bouillon culture. The small pieces of sponge, about 1 centimeter cube, were kept in a Petri dish in the cold room. The sponge inoculated with bouillon culture was apparently dry on the second day.]

Time.	Result.	Remarks.
2 days	+	The sponge is dry.
4 days	+	
6 days	+	
8 days	+	
12 days	+	Contaminated, but contains plague.
14 days	+	
21 days	+	
31 days	+	Contaminated, but contains plague.
43 days	+	

BOUILLON CULTURE ON WHITE PINE SPLINTERS.

[Three-day-old bouillon culture.]

2 days	–	
4 days	–	
6 days	–	
8 days	–	
10 days	-	
12 days	–	
14 days	–	

AGAR CULTURE ON BONE DUST.

[Inoculated with a suspension of an agar growth from heart's blood of mouse No. 12. The bone dust came from the cargo of a vessel from Bombay. It was sterilized and inoculated with an agar suspension of plague, and kept in a small vial tightly corked. Remains moist.]

1 day	+	Moist.
3 days	+	Do.
5 days	+	Do.
7 days	+	Do.
13 days	+	Do.
20 days	+	Do.
30 days	+	Do.
43 days	+	Moist, contaminated.

Still under observation.

Plague cultures on various objects.

[Dry and moist. In incubator, 37° C.]

BOUILLON CULTURE ON BONE DUST.

[Bone dust from Bombay, saturated with a 3-day-old bouillon culture. Kept in small vial, loosely stoppered with cotton. Soon dried out.]

Time.	Result.	Remarks.
1 day	+	
4 days	–	Dry.
6 days	–	
11 days	–	
17 days	–	Contaminated—mold.
25 days	–	

Plague cultures on various objects—Continued.

BOUILLON CULTURE ON PIECES OF BONE.

[Dried femur of an ox was broken into bits, sterilized, and saturated with 3-day-old bouillon culture of plague; allowed to dry in a Petri dish in the incubator.]

Time.	Result.	Remarks.
1 day	+	
6 days	–	
11 days	–	Contaminated—mold.
17 days	–	Do.

BOUILLON CULTURE ON LOAM.

[Three-day-old bouillon culture used. The loam sterilized and kept in a small vial saturated with the culture and stopped with cotton so as to allow it to dry.]

1 day	+	
4 days	–	Dry.
6 days	–	Do.
11 days	–	Do.
17 days	–	Do.
25 days	–	Do.

BOUILLON CULTURE ON FILTER PAPER.

[Three-day-old bouillon culture.]

2 days	–	
4 days	–	
6 days	–	
8 days	–	
10 days	–	
12 days	–	Contaminated with a sarcina
14 days	–	

BOUILLON CULTURE ON CRASH.

2 days	–	
4 days	–	
6 days	–	
8 days	–	
10 days	–	
12 days	–	
14 days	–	

BOUILLON CULTURE ON SPONGE.

2 days	+	
4 days	–	Contaminated with a spore-bearing organism.
6 days	–	Do.
8 days	–	Contaminated with a mold.
10 days	–	
12 days	–	Do.
14 days	–	Contaminated with a coccus.
21 days	–	

BOUILLON CULTURE ON WOOD (WHITE PINE).

2 days	–	
4 days	–	
6 days	–	
8 days	–	
12 days	–	
14 days	–	

Plague cultures on various objects—Continued.

AGAR CULTURE ON BONE DUST.

[Inoculated with a suspension of an agar growth from heart's blood of mouse No. 12, and kept in incubator at 37° C.]

Time.	Result.	Remarks.
1 day	+	Moist.
3 days	+	Do.
5 days	+	Do.
7 days	+	Do.
14 days	+	Do.
21 days	+	Do.
31 days	+	Do.
43 days	+	Do.

Still under observation.

The bone dust came from the cargo of a vessel from Bombay. It was sterilized and then inoculated with an agar suspension of plague in a small bottle, kept tightly corked, so that the bone remains moist.

Agar suspensions in water.

DISTILLED WATER.

[Kept in incubator at 37° C. Four drops of an agar suspension in bouillon inoculated into 15 c. c., sterile distilled water.]

Time.	Result.	Remarks.
1 day	+	Tested on agar.
6 days	+	Do.
11 days	–	Do.
17 days	–	Do.
20 days	–	2 c. c. of the water planted in bouillon.
24 days	–	Do.

DISTILLED WATER.

[Kept in cold room at 17° to 19° C. Four drops of an agar suspension in bouillon inoculated into 15 c. c., sterile distilled water.]

1 day	+	Tested on agar.
6 days	+	Do.
11 days	+	Do.
17 days	–	Do.
20 days	+	2 c. c. of the water planted in bouillon.
25 days	+	Do.

Still under observation.

DISTILLED WATER.

[Kept in dark room at 22° to 28.8° C. Four c. c. of an agar suspension in bouillon inoculated into 15 c. c. sterile distilled water.]

1 day	+	Tested in agar.
6 days	+	Do.
11 days	–	Tested in agar; contaminated.
16 days	–	Tested in agar.
20 days	+	2 c. c. of the water planted in broth.
25 days	+	Do.

Still under observation.

TAP WATER.

[Kept in incubator at 37°. Four drops suspension of an agar growth inoculated into 15 c. c. sterile tap water.]

1 day	+	Tested in agar.
6 days	+	Do.
11 days	–	Do.
17 days	–	Do.
20 days	–	2 c. c. of the water planted in broth.
24 days	–	Do.

Agar suspensions in water—Continued.

TAP WATER.

[Kept in dark room at 22° to 28.8° C. Four drops of a suspension of an agar growth in bouillon inoculated into 15 c. c. sterile tap water.]

Time.	Result.	Remarks.
1 day	+	Tested in agar.
6 days	+	Do.
11 days	+	Tested in agar; delayed.
16 days	+	Tested in agar, contaminated.
20 days	+ ?	2 c. c. of the water planted in broth.
25 days	+	Do.

Still under observation.

TAP WATER.

[Kept in cold room at 17° to 19° C. Four drops of an agar suspension in bouillon inoculated into 15 c. c. sterile tap water.]

1 day	+	Tested in agar.
6 days	+	Do.
11 days	+	Tested in agar; delayed growth.
17 days	—	Tested in agar.
20 days	+	2 c. c. of the water planted in broth.
25 days	+	Do.

Still under observation.

Plague spleen and culture exposed to sunlight.

SPLEEN OF PLAGUE RABBIT EXPOSED TO SUNLIGHT.

Small piece of the spleen of a rabbit dead of plague exposed in a Petri dish to direct sunlight May 26.

At the end of five hours planted in broth gave a typical growth and inoculated into two mice. Killed it in five days and plague organisms obtained in pure culture from blood and spleen.

CULTURES ON VARIOUS OBJECTS EXPOSED TO SUNLIGHT.

[Objects saturated with a two-day-old bouillon culture of plague. Exposed to direct sunlight in Petri dish. Temperature from 33.2° to 35.5° C. in the sun.]

Object.	Hours exposed.						Remarks.
	½	1	2	3	4	6	
Filter paper	—	—	—	—	—	—	
Crash	—	—	—	—	—	—	
Sponge	+	—	—	—	—	—	
Wood splinters	—	—	—	—	—	—	

Plague spleen dried under various conditions.

SPLEEN OF PLAGUE RABBIT.

[Dried in a Petri dish in incubator, 37° C. Spleen of rabbit No. 41. Soon became very dry, hard and friable.]

1 day	+	
12 days	+	Killed mouse overnight. Eighteen hours.
26 days	+	

SPLEEN OF PLAGUE RABBIT.

[Dried in dark room at 22° to 26.2° C. The spleen of rabbit No. 42. The surface sterilized by burning alcohol. Kept in Petri dish.]

1 day	+	
13 days	—	
27 days	—	

Plague spleen dried under various conditions—Continued.

SPLEEN OF PLAGUE RABBIT.

[Dried in cold room, 17° to 19° C. Spleen of rabbit No. 39, taken with aseptic precaution and placed in a Petri dish and kept in the dark in the cold room. The spleen soon dried.]

Time.	Result.	Remarks.
6 days	+	Moist.
18 days	+	Dry and friable.
20 days	+	
34 days	+	

Still under observation.

Plague cultures on albumin-gelatin balls.

PLAGUE CULTURE ON ALBUMIN-GELATIN BALLS.

A little ball of sterilized absorbent cotton about the size of a pea is soaked with a few drops of a mixture of a gelatin culture of plague and egg albumin.

These balls were placed in a Petri dish, where they soon dried out and shrunk to a dry, hard, flaky scale. One set was exposed in the cool chamber, where the temperature remains constantly between 17° and 19° C.

The other set was exposed in the dark room, where the temperature ranged from 20° to 29° C.

From time to time one of the albumin gelatin balls is taken out and planted in bouillon. In case a growth appears it is tested on media and animals.

It was found that the organism lived and remained virulent under these conditions 75 days in the dark room (20° to 29° C.) and 138 days in the cool chamber (17° to 19° C.).

Time.	Cool chamber (17° to 19° C).	Dark room (20° to 29° C).
60 days (From Feb. 26 to April 27, 1900).	Good growth on bouillon. Bouillon culture inoculated into mouse No. 9; died in 4 days. Agar emulsion inoculated into mouse No. 11; died in 3 days.	Good growth in bouillon (delayed). Bouillon culture inoculated into mouse No. 10; died in 5 days. Agar emulsion inoculated into mouse No. 12; died in 4 days.
75 days (From Feb. 26 to May 12).	Growth in bouillon contaminated. Inoculated into mouse No. 14; died in 5 days of plague.	Good growth in bouillon (delayed). Agar suspension inoculated into mouse No. 14; died in 2 days.
112 days (From Feb. 26 to June 20).	Good growth in bouillon. Inoculated into white rat No. —; died in 3 days; and into mouse No. 15; died in 3 days.	No growth.

The complete autopsy records of the animals above mentioned are not reported on account of their length. It is sufficient to state that they died of plague and that the organism was removed from the blood and spleen.

The following article was prepared by P. A. Surg. H. D. Geddings and was read at the Thirteenth International Medical Congress, held at Paris, France, August, 1900.

THE CAUSAL RELATION OF THE BACILLUS ICTEROIDES (SANARELLI) TO YELLOW FEVER.

[By H. D. GEDDINGS, Passed Assistant Surgeon, Marine-Hospital Service.]

During the summer of 1897 there appeared in the pages of the Annals of the Pasteur Institute several memoirs by Prof. Joseph Sanarelli, then of the University of Montevideo, now of the University of Bologna, announcing the discovery of a heretofore undescribed microorganism in connection with the study of yellow fever, and for which he claimed specific causal relations with that disease.

Sanarelli had isolated the organism in about 50 per cent. of the small number of cases studied, had reproduced the pathological lesions of the disease in various animals, and had even gone to the extent of reproducing the disease in human beings in whom he had injected the toxins isolated from the bacillus in the process of its growth and development.

He claimed that the disease was a septicæmia; that the bacillus entered the blood, there developed and multiplied, and was then deposited in the liver, spleen, and kidneys by the blood current in the terminal capillaries of these organs.

The announcements of his discovery was received with considerable incredulity in Europe and the United States, by reason of repeated failures on the part of other observers to arrive at any definite conclusion in the same lines of investigation and of the small percentage of cases in which the bacillus had been isolated.

In October, 1897, the writer was detailed by the Surgeon-General of the Marine-Hospital Service to cooperate with Surgeon Wasdin in the city of New Orleans, La., where an epidemic of yellow fever was then prevailing, and in November of that year Dr. Wasdin and the writer were detailed by the President of the United States as a Commission to continue the study of the cause of yellow fever in Habana, island of Cuba. These investigations were continued until March, 1898, when they were interrupted, and were resumed in November, 1898, and continued until June, 1899, when a report detailing our operations and setting forth our results was published.

With this preface, let us ask what demands must be fulfilled by a microorganism before it can be considered as a specific cause of a given disease. We revert to the laws of Koch:

1. The organism must be present in the blood or tissues of men or animals sick with or recently dead of the disease.

2. The organism must be isolated, freed from all foreign organisms or substances, and must be procured in pure culture.

3. This pure culture introduced into susceptible animals must produce the symptoms and lesions of the disease in question.

4. In the disease thus produced the organism must be found distributed as in the natural disease.

(And to these requirements there has of late years been added another.)

5. That the chemical products of the organism when introduced into animals must produce symptoms and effects of the disease.

Have these demands been fulfilled or not in the case of the *Bacillus icteroides?*

1. Sanarelli, in a small number of cases, succeeded in isolating the organism in question in slightly more than 50 per cent of the cases studied. This number included both blood and organs taken post mortem and blood and fluids of the body examined during life.

Archinard, of New Orleans, isolated the organism from live blood, and from blood, fluids, and organs obtained post mortem, in over 80 per cent. of the considerable number of cases studied.

Wasdin and the writer, in fourteen cases critically studied in Habana and about twenty cases studied in New Orleans, found the organism in 92 per cent. of the cases where the blood alone was studied during life; in 85 per cent. of the cases studied post mortem from blood, fluids, and organs.

As further strengthening this position, it must here be recorded that Wasdin, studying thirty or more cases during life and post-mortem of disease diagnosed during life as not yellow fever, failed in all cases to find the *Bacillus icteroides* or any organism resembling it.

Therefore, it may with justice be claimed that the *Bacillus icteroides* is found in a very large proportion of cases of yellow fever, and is not found in diseases other than yellow fever, prevailing contemporaneously in yellow fever habitats.

I submit that the first of the laws of Koch has been proved and verified in the relation of *Bacillus icteroides* to yellow fever.

2. Laboratory animals—mice, rats, guinea pigs, rabbits, dogs, and monkeys—are susceptible to the *Bacillus icteroides* when injected subcutaneously, intraperitoneally, or intravenously, and perish with all the evidences of a septicæmia when examined post-mortem. The organism is found in the blood, spleen, liver, and sometimes in the kidneys; the liver presents well marked fatty degeneration; the kidneys are the seat of parenchymatous nephritis, and the urine contains albumin. The mucous membrane of the stomach and small intestines is injected, engorged, and is often the seat of punctate hemorrhages and sometimes of free hemorrhages of considerable quantity. Prior to death the animal is unconscious to external impressions and is the subject of convulsions, which are uremic in character.

Further, Wasdin has succeeded in producing the disease in mice, dogs, and monkeys by insufflating them with culture of the *Bacillus icteroides* mixed with a dry sterile powder, and in the case of the monkey an illness followed, typical as to symptoms and temperature curve, and from the blood of the animal during life the specific organism was isolated.

Therefore, the writer regards that the *Bacillus icteroides* has triumphantly fulfilled the indications of the second and third of the laws of Koch.

3. In the laboratory animals—mice, guinea pigs, rabbits, etc.—submitted to experimental inoculation with *Bacillus icteroides* the organism was found in some cases in the blood during life and in the liver, spleen, and (in a few instances) the kidneys post-mortem. The fourth law of Koch has, therefore, been fulfilled in the case of *Bacillus icteroides*.

4. From cultures of the *Bacillus icteroides*, usually in bouillon, there were obtained sometimes by filtration through porcelain, at other times by precipitation with ammonium or magnesium sulphate, toxic substances which in small doses were fatal to mice, rats, guinea pigs, rabbits, dogs, and other laboratory animals. The lethal doses of these substances varied somewhat with the age and virulence of the cultures from which they were prepared. In general it may be said that 0.25 c. c. of the filtered bouillon cultures was an invariably fatal dose, within twenty-four hours, for a mouse weighing twenty or more grams. From 1 to 3 milligrams of the substance precipitated by ammonium sulphate was a lethal dose for mice of the same weight in a period of time varying from twenty minutes to twenty-four hours.

Comparative tests were made of these toxins as compared with toxins precipitated from the *B. typhosus* and *B. coli communis* and others.

With this exposition, therefore, the writer respectfully submits to this section of the Thirteenth International Medical Congress that the claims of Sanarelli to have discovered a specific cause for yellow fever, to which cause he has given the name of *Bacillus icteroides*, have been fully justified and are as much a fact as the causal relation which exists between the cholera spirillum and cholera or between the *Bacillus tuberculosis* of Koch and that disease.

In the opinion of the writer it is no more than simple justice to Professor Sanarelli to make this acknowledgment, and to do less is to treat a zealous and truly scientific worker with injustice.

It will be interesting at this time to glance at the opposition to the claims of Sanarelli and its sources. The adverse claims which have been advanced in regard to Sanarelli's discovery have been numerous, most of them, however, resting simply on theoretic grounds, without experimental work to support them. The most widely disseminated claim has been that advanced by Reed and Carroll, of the United States Army, as to the identity of the *Bacillus icteroides* and the bacillus of hog cholera. Reed and Carroll distinctly make the claim in the Medical News of May, 1899, that they have produced hog cholera in susceptible animals by feeding them with cultures of the *Bacillus icteroides*. Naturally such a claim coming from such a source attracted widespread attention and was regarded as a serious blow to the claims of Sanarelli to have discovered an organism specific for yellow fever. Dr. Wasdin and the writer, as a commission, therefore, felt bound to take cognizance of this announcement and to prove or disprove these claims by experiments conducted on parallel lines.

It will be pardonable, therefore, to recount at length an experiment which was conducted at a spot where the yellow fever had never existed and where, at the time, there was no suspicion of sporadic cases of hog cholera prevailing among the swine in the vicinity.

Seven pigs about 2 months old and of the same litter were put into a new sty and kept under observation for several days to establish their healthfulness. Then one of the number was removed and put into another sty to act as a control. To the 6 pigs remaining there were fed, during three days, 24 virulent cultures of the *Bacillus icteroides* upon agar-agar and 1,500 c. c. of bouillon culture of *Bacillus icteroides* from the same source. The pigs were carefully watched, and for ten days presented not one single trace of any malady whatsoever. At the end of this time 3 pigs were killed and their intestinal canals were examined most carefully from the cardiac end of the stomach to the anus. There was not the slightest trace of any pathological lesion. The intestines were normal throughout, and there was not a sign of any of the very characteristic lesions of hog cholera. The remaining pigs, the control, and the 3 others submitted to experiment were kept under observation for a period of six months. They never manifested a day's sickness, but grew and waxed fat in a perfectly normal and natural manner, when they were killed and used for food.

In the light of this experience the writer can only claim that there is certainly a wide discrepancy between the results of Reed and Carroll and those obtained by Wasdin and myself. The hog cholera position, therefore, is unproven, and until definitely proven the writer must submit that the claim of Reed and Carroll can not in justice be maintained.

Time will prove who is right and who is wrong.

The writer takes pleasure in paying tribute to Professor Sanarelli as an original discoverer, an earnest, honest investigator, a distinguished scientist, and a man whose name will be handed down in future scientific literature on the same high plane as Koch and that illustrious group of earnest, modest, farseeing scientists at whose feet he has sat and by whose teaching he has profited.

Thus may the matter rest until it shall be definitely proven by dispassionate, unbiased investigators that the position taken by Sanarelli is untenable. Should he be proved wrong and others right, the writer will be among the first to acknowledge his error and to pay tribute to those who may have brought the error home. Until then he can only feel gratification that, simply as a collaborator and in no sense an original discoverer, he has been instrumental in placing the claims of Sanarelli before the scientific world for their affirmation or denial.

The matter is not ended; it can not be said to be ended until more work has been done, and this work on certain lines is being pushed to a conclusion. Efforts are being made in the hygienic laboratory of the Marine-Hospital Service of the United States to prepare a serum, preventive and curative, for yellow fever, by the immunization of horses with the *Bacillus icteroides.* Sufficient time has not yet elapsed to make any announcement as to the results of these efforts. The animals have reached a point where their serum possesses certain preventive properties, though it can not as yet be considered curative.

At some future time and place it is hoped that we will be in a position to make a more definite announcement on this important line. Until then, so far as we are concerned, the discussion is closed and silence will be maintained until such a time as there seems to be something worth saying and something worthy of the consideration of a body such as this.

Improvements to Equipments, etc.

Among the notable additions to the laboratory I desire to mention a crematory. This has been authorized and is now in course of construction.

The entire laboratory has been furnished with screens for the windows and doors, which is a necessary protection against spreading infectious germs by means of flies, etc.

A special chamber containing just 500 cubic feet has been built for the purpose of conducting experiments with gaseous disinfectants. It is made gastight, lined with impervious paper, and has a valve and blower below and an outlet above connecting with the outside.

A new evaporator and condensor has been installed, which works automatically, and we are now able to obtain 36 liters of distilled water a day.

A large soapstone sink, with all the plumbing and steam connections and drip boards and special pegs for drying tubes, etc,, was put in place.

Another large Roux incubator and much shelving was found necessary on account of the increased amount of work carried on during the winter.

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